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COMPUTERWORLD

PC managers focus on OS installations

Gnatty bugs harass OS/2 2.0 deployments

BY ROSEMARY HAMILTON and CHRISTOPHER LINDQUIST
CW STAFF

NEW YORK — As the desktop war of words between IBM and Microsoft Corp. continues, information systems managers are focusing on a far more down-to-earth concern: getting those companies' new personal computer environments deployed throughout their organizations.

Industry analysts said Windows 3.1 rollouts may be going more smoothly than those with OS/2 2.0 because the new Windows version is essentially an extension of the Windows 3.0 environment. On the other hand, OS/2 2.0 is a new, 32-bit operating system.

"OS/2 is a much larger undertaking," said Mark Mackaman, a partner at the Redmond Group, a research firm in Redmond, Wash. "It's just a much more complex product [than Windows 3.1], so it's going to take much more testing."

Several IBM OS/2 2.0 and

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Initial discomfort
Reported bugs with OS/2 2.0:

Royal Bank: Glitch in recovery of disk space when workstation configured as a high-performance file system. IBM fixed it.

Huntington Bancshares: Problem running a third-party Windows-based application under 2.0. Issue has since been resolved.

Prudential Investment: Glitch in a storage allocation procedure, apparent with heavy use of icons. IBM working to resolve.

Southern California Gas: "Strange" occurrences in Workplace Shell, including duplication of icons and disappearing icons. Waiting for IBM response.

Execs depart troubled lessor

BY JOHANNA AMBROSIO
CW STAFF

DEERFIELD, Ill. — The top two executives at Meridian Technology Leasing Services, the industry's third-largest leasing company, are resigning July 1 to start their own separate firms.

The departures of Harvey Kinzelberg, Meridian's founder and chairman, and Timothy Ozark, the company's president, signal a change in focus for Meridian. The firm will continue in the leasing business but will offer additional financial services to its 1,000 clients, executives said.

Meanwhile, it came to light last week that Meridian was expelled last month from the Computer Dealers and Lessors Association for violating the trade group's code of ethics.

Meridian executives responded that the company had already resigned from the CDLA in October 1991. They disputed the ethics violation charge.

The changes have at least one customer examining its relationship with Meridian. "We are concerned," said Ray Gilmore, senior vice president of information services at General Casualty Co. of Wisconsin, an insurance firm in Sun Prairie. "We are evaluating a lease for a computer

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Lease on life
Despite some problems, leasing is still a good business to be in

Source: Computer Dealers and Lessors Association

IBM delays new router, loses face

More testing needed; few users waiting

BY JOANIE M. WEXLER
CW STAFF

RALEIGH, N.C. — IBM last week postponed delivery of its ballyhooed multiprotocol router by three months so it can better integrate the product's range of routing, bridging, management and other functions, the company said.

The move threatens to weaken IBM's already tenuous position in the $1 billion router market, particularly if the schedule slips any further, users and analysts said.

IBM bit off more than it could chew in attempting to turn agound a complex initial offering to the fertile router market on an 18-month development cycle, according to users and analysts.

No need to panic

However, with plenty of other proven products to choose from, the delay is not a disaster for most companies embarking on building internetworks.

"If IBM doesn't have it, we'll just buy it from someone else," said Philip Newcomb, senior technical consultant at Baxter Healthcare Corp., a large IBM shop in Deerfield, Ill., that is looking to migrate its Systems

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APPLE/IBM BIRTHDAY

Users snub star-crossed pairing

BY JAMES DALY and CAROL HILDEBRAND
CW STAFF

The first birthday of a wide-ranging technological partnership between Apple Computer, Inc. and IBM — strange bedfellows by any definition — reveals two fairly tight-lipped camps.

The duo, which just a year ago this week announced bold plans to redraw the corporate desktop, has so far found the task of cranking up the development engines and garnering user support to be a difficult one. And, some users say, their efforts may well prove fruitless.

Both Apple and IBM have admittedly done a poor job of selling the whys and wherefores of their ambitious foray into object-oriented RISC-based computing to their intended target: power users. Apple, in fact, declined numerous offers to discuss with *Computerworld* its partnership with IBM.

Faced with such vagueness, many information systems professionals said they regard the lofty blueprint — one of many from IBM — as little more than an interesting sideshow.

"I don't expect anything earth-shattering to come out of all this. In fact, I don't expect anything at all," said Allen Head, IS development manager at Universal Flavor Corp. in Indianapolis. "I can't build our future around their plans."

Competitors, in the meantime, are moving ahead aggressively. The increasingly strong bold that Microsoft Corp.'s Windows has on the operating systems market, along with Intel Corp.'s revved-up product cycle and the merging of the personal computer and worksta-

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Copyright grip on source code weakened

BY THOMAS HOFFMAN and JOHANNA AMBROSIO
CW STAFF

NEW YORK — In what could become a landmark decision affecting the entire software industry, a federal appeals court last week ruled that the behavior of a computer program is not protected under copyright law.

The ruling, handed down by the U.S. Court of Appeals for the Second Circuit in Manhattan, found that the creativity behind a software program could not be the subject of copyright protection.

The case in question involved an appeal made by Computer Associates International, Inc., the $1.4 billion Islandia, N.Y.-based software giant, regarding a suit against Altai, Inc., a small Dallas-based mainframe software company. CA successfully sued Altai in 1987 for infringing on CA's copyrighted CA-Scheduler, a job-scheduling program designed for IBM mainframes (see story page 15).

Subsequently, CA charged that the new version of the disputed Altai program also infringed on CA-Scheduler. Altai countered that charge, claiming that the new code was substantially different.

In 1991, the U.S. District Court for the Eastern District of New York agreed with Altai on that point but awarded monetary damages to CA, which appealed the ruling.

The Second Circuit Court ruling upheld the previous court's

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A new book on viruses could inadvertently aid mischief seekers. Page 4.

PC Expo finds Dell and Everex unleashing new product lines. Page 13.

Executive Report — IS execs learn some 'Lessons from Hell' and tell what they'll do differently the next time disaster strikes. Page 77.

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JACK KUEHLER
IBM

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The 5th Wave

EXECUTIVE BRIEFING

■ **The first anniversary is known as the Paper Anniversary, and that's about all IBM and Apple have at this point** — great products on paper. With delivery dates stretching into the mid-1990s, users aren't holding their breath waiting for the real thing, either. Next-generation operating systems such as Microsoft's Windows NT — due out years before Taligent — could put some lumps in the two companies' plans, too. **Page 1.**

■ **Companies often ask questions that can best be answered geographically and visually:** Where are my customers and competitors? Where should I locate my warehouses? Businesses from Chemical Bank to Johanna Dairies are using geographic information systems and finding ways to map corporate data, reveal business patterns and improve decision-making. **Page 85.**

■ **Dell and Everex smacked Compaq with a competitive response** by announcing low-end desktop systems and some steep price cuts. **Page 13.**

■ **Being prepared for disaster** doesn't mean IS operations will run without a hitch after the earth quakes or a hurricane blows. Six companies share the lessons disasters taught them. **Page 77.**

■ **Sun's SunSoft subsidiary is rolling out its Solaris 2.0** operating system to OEMs now for year-end shipping on SPARC platforms. **Page 7.**

■ **IBM delays its entry into the $1 billion multiprotocol router market** by pushing delivery of the 6611 Network Processor back three months. Users say they are disappointed but have other options. **Page 1.**

■ **Some IS spin-off companies are chock full of openings for programmers** as well as business and systems analysts. **Page 92.**

■ **Kimberly-Clark is scrambling to find a replacement for CIO John T. Kohler.** The dynamic IS leader, credited with helping to push the paper products manufacturer to the front ranks of technology-enabled business, quit midmonth to take up consulting. **Page 6.**

■ **Four developers are proposing a new version of SNMP** that they hope will succeed both the old SNMP and CMIP. Users welcome SMP's increased functionality but wish vendors would stop bickering. **Page 16.**

■ **Intel goes low voltage** in its new generation of chips for notebook computers. But systems will have to be redesigned to get the power savings. **Page 37.**

■ **Virus activity should be low** this month, but there are a couple of nasty new ones cropping up. **Page 55.**

■ **Unix vendors aren't happy** about USL's shrink-wrapped operating system. They complain that USL is competing with its OEM customers. **Page 61.**

■ **Software leasing's popularity grows** as recession-strapped users seek to spread out payments. However, not many vendors have signed on to the concept yet. **Page 73.**

■ **Class libraries catch on** in sites developing multiplatform applications. Productivity benefits are big, but a lack of standards has some users wary. **Page 75.**

■ **On site this week:** IS services firm commits big to Lotus' Notes. **Page 61.** Stanford University tests imaging in a client/server environment and likes it despite increased complexity and network overhead problems. **Page 65.** Texaco gushes about the benefits of using a data server to link disparate databases. **Page 73.** Cancer treatment center saves money and ups productivity with document imaging. **Page 74.** GM uses a new parallel processing technology to manage multiple real-time activities from one shared-memory system. **Page 31.**

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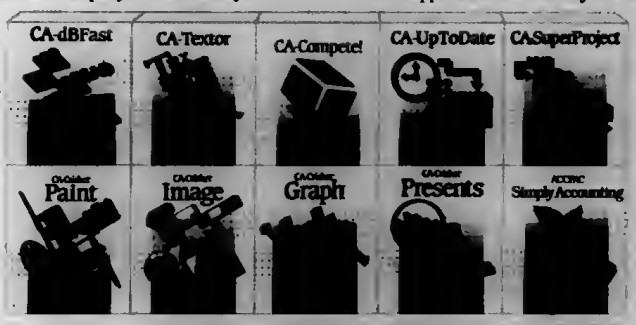
Seven applications are already scheduled for delivery this Fall.



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Virus fighters fume over little black book

Debate rages over merits of publishing codes

BY JAMES DALY
CW STAFF

A little book is rattling a lot of chains in the computer security business these days. A little black book, to be exact.

Only two weeks after being picked up by a small publishing house, *The Little Black Book of Computer Viruses* has initiated as nasty and divisive a free speech battle as this community has seen.

That is because the 178-page ebony volume is chock full of the necessary source code for creating potentially destructive viruses. And for $15, the less technically inclined can simply send in a coupon and order floppy disks already loaded with compiled and executable virus programs.

Anger flames

Professional virus fighters such as Alan Solomon at S&S International are madder than angry hornets over the publication. They are encouraging anti-black book campaigns that include picketing author Mark Ludwig's house, boycotting shops that sell the book, petitioning Congress and even bringing in lawyers.

Others said the book is relatively harmless because any hacker who really wants to get virus source code only has to dial up one of the innumerable hacker bulletin boards to quickly and easily download dozens of viruses.

Critics dismissed Ludwig's First Amendment defense as the computational equivalent of yelling "fire" in a crowded movie theater.

Inherently 'evil'

"Any virus, by its nature, is evil, and Ludwig presents sample after sample of ways to go about writing damaging code," said David Stang, chairman of the International Computer Security Association in Washington, D.C.

"The fundamental attraction of computers is that we can understand, control and predict what they do," he added. "We do not want that data messed with, but Ludwig seems to think it's okay."

Not true, according to Ludwig, who claimed the purpose of the book is not destructive but educational.

"Computer viruses are not evil, and programmers have a right to create them, possess them and experiment with them," Ludwig said. "These viruses are designed so that security people can see what a virus looks like and how it behaves. How can anyone realistically be in charge of security without having ever seen a virus?"

The book's jacket cautions that those who misuse its viruses can be held legally liable, even if the misuse is unintentional. Additionally, Ludwig said, the viruses in the book are protected by copyright law and anyone who uses them without his permission will be subject to both civil and criminal prosecution.

Stang has suggested that if Ludwig's altruistic claims are true, then he should offer to donate the proceeds from *The Little Black Book of Computer Viruses* to a fund that would fight the spread of damaging computer viruses.

> *On the book jacket of* The Little Black Book of Computer Viruses *is a bold note warning that the viruses contained inside can be extremely dangerous in the hands of incompetent people. "Do not attempt to execute any of the code in this book unless you are well-versed in systems programming for personal computers and you are working on a carefully controlled and isolated computer system," the warning reads.*

Others have suggested that Ludwig should have included "pseudo-code" versions of the viruses, which contain enough information to illustrate a point without providing a full working virus.

First in a series

The book is scheduled to be the first in a series of three books about computer viruses. Ludwig first published the book himself last year and became its primarily salesman after it was reportedly turned down by a succession of publishers.

The Upland, Pa.-based Diane Publishing Co. picked up the distribution rights to *The Little Black Book of Computer Viruses* earlier this month.

"We see nothing wrong with it," Diane Publishing President Herman Baron said. "We put it out for the simple reason that it fits in with our catalog of computer security books."

Lotus results expected to dip

Officials blame decline on vicious competition in Windows spreadsheets

BY ROSEMARY HAMILTON
CW STAFF

CAMBRIDGE, Mass. — Lotus Development Corp. last week said this quarter's revenue will likely be $10 million less than what Wall Street has been expecting and blamed slower than expected growth in Microsoft Corp.'s Windows spreadsheet market, among other market factors.

"I think some investors might be throwing up their hands saying, 'Here we go again,' " Mary McCaffrey, a vice president at New York-based brokerage C. J. Lawrence, Inc., said of the Lotus warning to tone down the estimates.

Also, the company said full-year earnings per share will likely be about 25 cents less than current estimates, which range from $1.95 to $2.30.

In explaining the lower quarterly results, Lotus cited slower than anticipated growth in the spreadsheet market — particularly in the Windows segment — as well as slower growth in some foreign markets, which it had mentioned earlier.

The view on spreadsheets, however, comes after very bullish and upbeat presentations at the LotusWorld conference held in Boston earlier this month. The company said then that while it had entered the Windows spreadsheet market with "mixed reviews" in 1991, it now has a 30% market share.

Recount

Analysts have rethought their projections for Lotus' second-quarter financials

	Revenues	Net income
1991 (in millions)		
Q1	$174.4	$6.6
Q2	$186.4	$9.2
Q3	$218.8	$21.5
Q4	$240.0	$14.3
1992 (in millions)		
Q1	$221.1	$20.8
Q2* (original)	$240.0	$25.2
(revised)	$220.0	$14.3

* analyst estimates

Source: Martin Simpson Research, Inc.

The company also released SmartPak, an enhancement for 1-2-3 for Windows, at LotusWorld as an example of an aggressive response to Microsoft.

Ed Gillis, Lotus' chief financial officer, said last week that the Windows market "has been experiencing very aggressive price competition" that "in part reflects the growth of multiple applications [sales] like Microsoft Office and [Lotus'] Smartsuite."

Smartsuite hit the market only recently, while Microsoft "is doing gangbusters with Office," McCaffrey said.

Bidding battle

A company spokesman said Lotus and Microsoft have been duking it out for corporate business and have been involved in "lots of price competition, lots of bidding" and discounting.

Separately, Lotus is planning to boost up its Realtime financial data feed software with an announcement today at the Securities Industry Association Show that it will extend the software to new platforms, such as IBM's AIX and Next, Inc.'s.

The company is planning to open the Realtime application programming interface so users can link Realtime to their applications.

Compaq plans foray into printer market

BY CAROL HILDEBRAND
CW STAFF

HOUSTON — In its third major announcement in four weeks, Compaq Computer Corp. will enter the printer market this week via a newly formed Peripherals Division.

Although the Houston-based personal computer manufacturer will be able to leverage strong name recognition and worldwide marketing muscle in its bid for a slice of the printer pie, analysts pointed out that me-too products will not pass muster.

"Compaq has an advantage over some unknown dealer," said Sharon Kern, an analyst at International Data Corp. in Framingham, Mass. "But unless they can offer new features or a price point not now seen, they're going to have some stiff competition."

Tough nut to crack

Even with a well-planned and well-executed effort, the printer market will be a tough nut to crack. Hewlett-Packard Co. holds a significant majority of both market share and mind-set, observers said.

However, Joel Wecksell, vice president and service director at Gartner Group, Inc., pointed out that Compaq can use a dealer channel that he estimates at about 4,000 sites worldwide. While the printer market is crowded, "the crowd doesn't have the window into the channel and the money to spend on advertising that Compaq has — with the exception of HP and Lexmark," Wecksell said.

Kern predicted that Compaq would try to differentiate itself with some sort of bundling deal with its PCs. She pointed out that the division's first efforts will be in the network printer field, a strong arena for Compaq servers.

Capping a long and secretive three-year buildup, the company will launch a worldwide Peripherals Division that will be structured and sized on a par with its PC and Systems Divisions.

According to David Black, the division's newly appointed vice president and general manager, this is Compaq's first venture outside the PC field. Although Compaq did get into the telecommunications business briefly in the mid-1980s, Compaq maintained that that venture was PC-based.

The first products out the door will be a family of network printers later this year.

"Initial products are targeting the network printer segment, which is a relatively new, emerging segment," Black said.

> "UNLESS [COMPAQ] can offer new features or a price point not now seen, they're going to have some stiff competition."
>
> SHARON KERN
> INTERNATIONAL DATA CORP.

According to sources close to the company, the first product will be a 17 page/min. laser printer.

However, Black said, the division will compete across the entire printer spectrum.

Although Black would not reveal product specifics, he said the division would compete with HP in the desktop market. He also acknowledged that a family of nonimpact color printers is in the works.

LOOK WHO'S COOPERATING ON A COOPERATIVE-SERVER DATABASE

The world's largest database company introduces a revolutionary new technology called a cooperative-server database. A cooperative-server database hides the complexity of computer networks by enabling applications to access data located on multiple computers just as if all the data were stored on a single computer. In this way, a cooperative-server database simplifies application building and improves decision making by making access to information easier...much easier.

"Oracle's always been the leader in building database technology. One of the great things about Oracle's approach is that they're hiding the differences between all the machines out on the network running on various platforms."

Bill Gates
Chairman and CEO
Microsoft Corporation

"ORACLE7's breakthrough in hiding technological complexity is analogous to the ease-of-use breakthroughs accomplished by the introduction of the Mac in 1984."

John Sculley
Chairman and CEO
Apple Computer, Inc.

"The fundamental problem with early client-server database management systems is that applications cannot access data on more than one server without a lot of extra programming. This programmatic approach to accessing data on multiple servers is in stark contrast to the totally automatic approach provided by ORACLE7."

Larry Ellison
President and CEO
Oracle Corporation

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John Young
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"ORACLE7 is really solving the complexities of the distributed computing environment cost-effectively. Plus, it supplies the reliability and security that are required in a distributed computing environment. In fact, because ORACLE7 matches Sun's client-server model so well, we have chosen ORACLE7 as one of our key databases."

Scott G. McNealy
President, CEO and Chairman
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NEWS SHORTS

IBM invests in KnowledgeWare

IBM paid $25 million for a U.S. site license for computer-aided software engineering products from its AD/Cycle business partner, KnowledgeWare, Inc. IBM will use KnowledgeWare's 12 different modules both internally and for developing commercial software products, a KnowledgeWare spokesman said. The deal's precise effects on KnowledgeWare's balance sheet will not be revealed until mid-August, when the company releases fiscal 1992 results.

IBM, Microsoft settle royalty spat

IBM and Microsoft Corp. have agreed to end their long-raging royalty dispute on OS/2 and Windows, an IBM spokesperson confirmed late last week. Neither company was able to make a high-ranking official available by press time to elaborate on the settlement terms. Kidder, Peabody & Co. and Dean Witter Reynolds downgraded their ratings on Microsoft stock from "buy" to "hold." Microsoft shares slid 2½ points to 67½.

Users back virus naming scheme

The Antivirus Methods Congress, a New York-based organization of computer network users, is endorsing a formal methodology in the confusing task of naming computer viruses. A spokesman said the formalized classification will allow technicians to avoid the trap of retracing work that has already been done on the rogue programs. The new scheme offers a four-part descriptor for each virus.

OSF releases OSF/1.1

The Open Software Foundation (OSF) announced general availability of OSF/1.1, the second release of its operating system kernel. Features include the ability to run on systems with as little as 4M bytes of memory and compliance with the Unix System V Interface Definition, or SVID3. Compliance ensures that applications written for Unix System Laboratories, Inc.'s System V, Release 4 Unix will be portable to OSF/1. The new release costs $85,000 for a source license with full distribution rights; existing licensees can upgrade to 1.1 for $25,000.

Sequoia forecasts weak results

Sequoia Systems, Inc. last week warned that its fourth-quarter and full fiscal year results will be significantly below expectations. The lower financials are a result of the write-off of receivables, including a $2.5 million receivable from Meta Associates in Vienna, Va., a government reseller that is engaged in a dispute with Sequoia and for which the Securities and Exchange Commission is in the process of investigating Sequoia's revenue bookkeeping.

Short takes

In a recent **Dataquest, Inc.** survey, private branch exchange users awarded **Rolm Corp.** the highest rating in terms of overall customer satisfaction during the first half of 1992. . . . **IBM**'a Extended Operations Console Facility/2 will ship later than expected. The OS/2-based data center operations software was promised by late May. . . . John Norris Maguire, the founder and former chairman of **Software AG of North America, Inc.**, is suing the firm for $1.5 million for allegedly improperly rescinding his $60,000-a-year consulting contract, . . . **Apple Computer, Inc.** and **Toshiba Corp.** will develop a handheld electronic device offering multimedia capabilities. Toshiba will make the device, which both firms will sell for less than $1,000 when it goes on the market in mid-1993. . . . IBM'a Integrated Systems Solution Corp. outsourcing division will use **Altai Software, Inc.**'s data center automation software when fulfilling its automation contracts. . . . **Next, Inc.** said its NextStep system software will fully comply with the government'a **Portable Operating System Interface** and **Government Open Systems Interconnection Profile** standards by year'a end. . . . **British Petroleum Exploration** has reportedly begun installing a 100-router **Cisco Systems, Inc.** global internetwork. . . . **NCR Corp.** will support **Microsoft**'a Mail 3.0 on its StarGroup local-area networks.

Kimberly-Clark CIO exits firm

Kohler leaves paper, fiber company to start management consultancy

BY NELL MARGOLIS
CW STAFF

DALLAS — Kimberly-Clark Corp. Senior Vice President and Chief Information Officer John T. Kohler quietly slipped out of office earlier this month to set up shop as a management consultant.

Kohler is following in the footsteps of the likes of former Merrill Lynch & Co. CIO DuWayne Peterson, now president of his own consulting firm. Kohler could not be reached for comment by press time.

Who will follow in Kohler's footsteps at the $6.8 billion paper and fiber products company? Kimberly-Clark wishes it knew, a spokesperson said last week.

John McMahon, vice president of administration, is manning the top information systems post, "but only in a temporary capacity," the spokesperson said. "We don't know when a permanent replacement will be hired."

Kohler apparently walked out of Kimberly-Clark at the top of his game. In the early stages of a reportedly costly assault on growing European markets — and faced with maturing U.S. markets and brutal competition in its major product lines — Kimberly-Clark last year turned to technology-driven customer service with a vengeance.

Kimberly'a **Kohler** *strikes out on his own*

Kohler and crew speeded the firm's electronic ordering across the board, punched up domestic order processing and inventory control, and implemented a graphical delivery-routing system. "Tremendous growth in the deployment of CAD reduced time-to-market, particularly in the firm's critical disposable-diaper line," Kohler said.

And the drive forward is still in high gear, Kohler said in a recent interview. "We're continuing to more closely align the IS function with our business units," he noted. He also cited plans to put an estimated $5 million to $7 million behind a sweeping telecommunications redesign, including globalized aystems as well as point-to-point communication among customer, distribution and manufacturing sites.

Process re-engineering steals AIIM spotlight

BY ELLIS BOOKER
CW STAFF

ANAHEIM, Calif. — Think process, not product. That was the message at last week's annual Association for Information and Image Management (AIIM) show, where the topic of business processes re-engineering stole the spotlight.

Each AIIM conference has witnessed improvements in scanners, character recognition, displays and optical storage. But as these technologies have matured and moved toward standards, users and vendors alike have come to see imaging in a far broader context.

"When you begin with imaging, you start asking questions about the paper flow, and that starts you asking about the business," said John Kick, the division general manager at Hewlett-Packard Co.'a Pinewood Information Systems Division.

More than 90% of the information handled by organizations today is in paper form, according to most estimates. Document imaging alters these familiar arrangements and suggests entirely new ways of organizing work and workers.

Many users seem ready to take the imaging plunge, according to a straw poll conducted by IBM at AIIM last week.

Ron Borgman, information programs manager at Herman Miller, Inc. in Zeeland, Mich., was one of those many AIIM attendees on the cusp of a decision about imaging.

The first manufacturer in its industry to use a satellite network to link its dealerships nationwide, Herman Miller now wants to transmit its parts catalog, which resides on microfiche, to dealers.

Borgman was not sure what to make of the emphasis on business process re-engineering and work flow. "I'm hearing here that it's difficult to cost-justify [imaging] without it," he said.

This sentiment was echoed by David Cabassa, the network administrator at Readmore, Inc., a New York firm that purchases magazines and journals for libraries. Cabassa came to his first AIIM conference last week hoping to find an imaging system for Readmore's 40 to 50 customer service representatives.

"I went in with a simple application I wanted solved and came out thinking about business re-engineering," Cabassa said.

Spying the opportunity to lend a helping hand to users considering process re-engineering, IBM officials strongly declared last week the firm'a intention to be at the center of this business.

But Thornton A. May, director of research at Tenex Consulting in Burlington, Mass., blasted IBM for now pushing consulting on top of its imaging products. "It's an apology to users who didn't get the productivity gains from imaging they expected," May said.

Imaging optimism grows

Vendors and users alike are optimistic about imaging via local-area networks.

"Some $500 packages here have the same functionality that companies were selling here for $500,000 six years ago," said Terry Menta, president of OptiMenta, an imaging firm based in Running Springs, Calif.

What has made this possible, of course, are more powerful desktop systems and a consolidation around some standard approaches, such as Microsoft Corp.'s Windows environment and its Dynamic Data Exchange.

"Last year our typical installation had five users, this year it's 25 to 30, and next year it'll be 50," said Harvey Jeane, president of Optika Imaging Systems, Inc. in Simi Valley, Calif.

Even at this level of the marketplace, however, the issue of business redesign rears its head.

"I think a lot of customers are using imaging as a wedge — as a vehicle to do a business process redesign," Jeane said.

ELLIS BOOKER

Sun pitches Solaris 2.0 to corporate desktops

BY MARYFRAN JOHNSON
CW STAFF

MOUNTAIN VIEW, Calif. — On time and as promised, Sun Microsystems, Inc.'a SunSoft subsidiary last week began shipping its next-generation Solaris 2.0 operating system to software and systems vendors for Scalable Processor Architecture (SPARC) platforms.

End users will not see Solaris 2.0 on Sun machines until late this year, however, when the SPARCstation 10 line of multiprocessor desktop systems and servers begins shipping. But few customers are in a rush to begin an operating system migration — regardless of how painless Sun claims it will be.

SunSoft also unveiled a lineup of personal computer companies preparing to sell Solaris on Intel Corp. machines next year. Dell Computer Corp., CompuAdd Corp. and Zenith Data Systems have now joined a Solaris 2.0 support roster that includes Toshiba Corp., AST Research, Inc., ICL, NetFrame Systems, Inc., NCR Corp., Olivetti USA and Everex Systems, Inc.

Sun's stretch for the Intel desktop is a crucial move in positioning itself in the corporate environment, analysts and users agreed. The workstation leader aims to have more than 90% of the 4,000 current SPARC applications ported to Intel within the next year. "If Sun can get people to take them seriously on other platforms, they have a real chance of being viewed as an enterprisewide player," said Judith Hurwitz, president of Hurwitz Computing Group in Newton, Mass.

At Honeywell Commercial Flight Systems in Coon Rapids, Minn., the idea of running Solaris on Intel is appealing for one manufacturing area that runs AutoCAD design software on both PCs and Sun workstations, said Willy Velarde, a senior productivity engineer at the navigation systems manufacturer. Support costs should decline if the operating system environment is the same for both platforms, he noted.

Sun plans to sell Solaris 2.0 on Intel only through its third-party OEM channels, which some analysts said is a half-hearted strategy. "There is no inherent demand for this product, and somebody has to create that demand," said David Card, an analyst at International Data Corp. in Mountain View, Calif. "Sun'a direct-sales force is much better at selling next-generation desktops than any of their potential OEMs for Intel could be."

Much to offer

Sun's new version of the 32-bit Unix operating system combines high-performance computing features such as symmetric multiprocessing with PC-style ease of use (see story this page).

"This is Sun'a opportunity to go as far as they can, as fast as they can, before Windows [New Technology] or the IBM/Apple alliance become market realities," said Robert Herwick, an analyst at Hambrecht & Quist, Inc. in San Francisco.

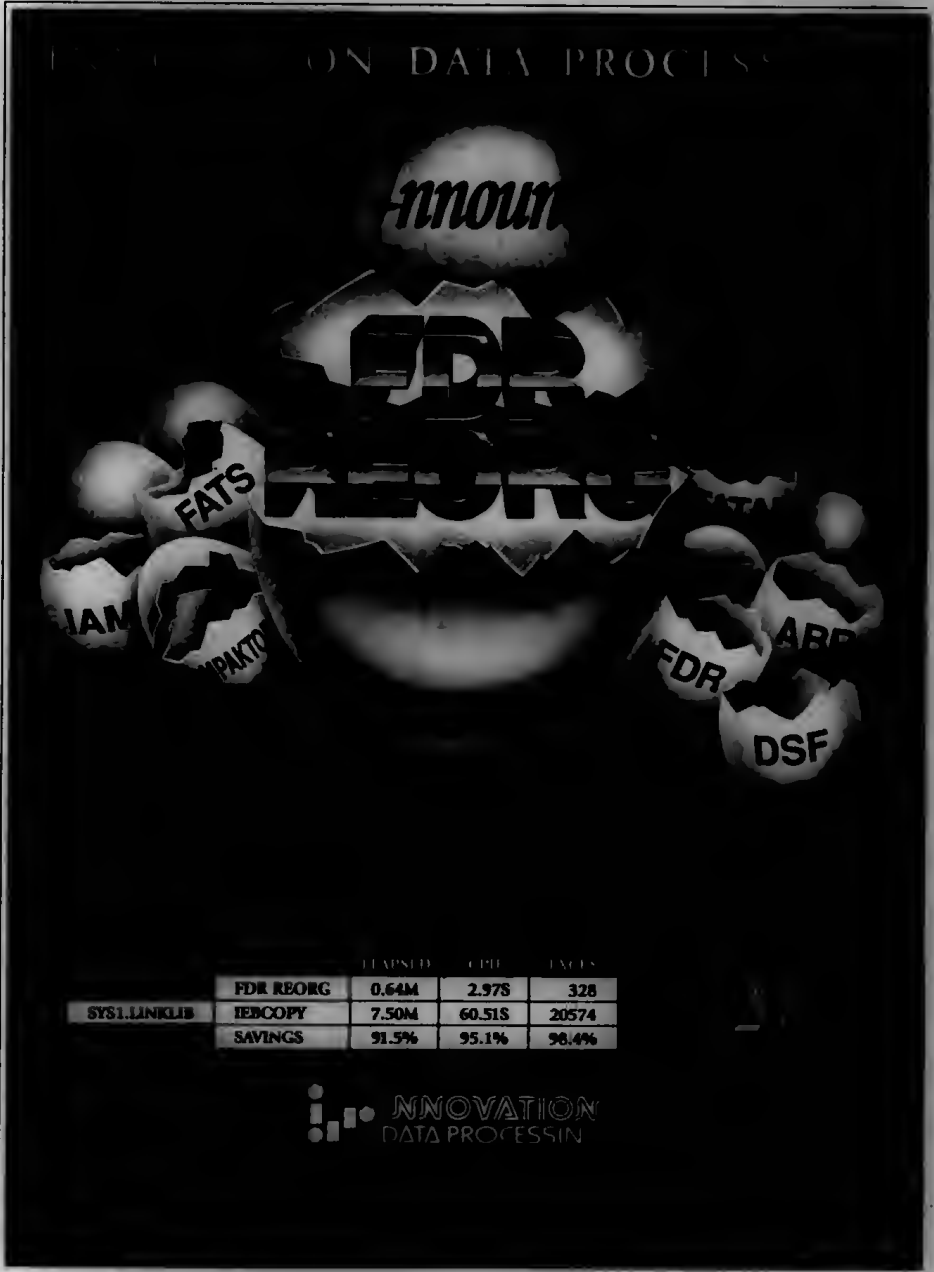
Analysts also said Sun is overly optimistic about the ease of migration from Solaris 1.0 to 2.0. "Sun thinks this will be like moving from one chip to another, but it'a going to be a headache for ISVs and some users," Card said.

"I have no doubt we'll move to Solaris 2.0, but Sun is promising five years' support of [the current operating system], so they're not forcing anybody to move too soon," said Harry Perrin, assistant vice president of investment systems at the Teachers' Insurance Annuity Association in New York.

Hot spots

Highlights of Sun's Solaris 2.0 unveiling include the following:

- Priced at $795 for a single desktop, Solaris 2.0 will be available on SPARCstation and SPARCserver platforms by year'a end.
- The new operating system extends the Unix System V, Release 4 kernel with 15 built-in productivity applications such as multimedia mail and workgroup calendar manager. It includes networking support and administration tools, symmetric multiprocessing capabilities and multithreading.
- Solaris 2.0 also includes mainframe-type enhancements for the commercial marketplace, such as disk mirroring to protect data from loss during system failures.
- Now shipping is the Solaris 2.0 OEM Multiprocessing Kit, which allows systems manufacturers to tune the symmetric multiprocessing features of Solaris for their own hardware.
- Solaris 2.0 will be available to developers in the July to September quarter for the Intel platform, with customer shipping to start in early 1993. No pricing has been established yet.
- Intel hardware supported: 33-MHz 80386 and 25-MHz or 50-MHz I486, requiring a minimum of 8M bytes of memory and a 200M-byte disk controller.



IS chugs along despite train engineers' strike

BY KIM S. NASH
CW STAFF

Cargo transport may have stood still, but the information systems departments at several major railroads moved right along last week despite the engineers' strike. In fact, it appears there were benefits as some shops attacked backlogged maintenance chores.

IS staffs were temporarily smaller at some railway companies as some members of the Transportation Communications Union (TCU) failed to show up for work. Santa Fe Pacific Corp.'s Topeka, Kan.-based data center, for example, was about 25 people lighter last week, although IS operations were largely unaffected, according to Bob Robinson, general director of computer operations.

"When you shut down the trains, you shut down the train operations, so things are quiet," Robinson said.

The remaining 300-person staff used the slow time to take down key systems such as dispatching, load tracking and train car management to perform maintenance tasks that would otherwise have been done in off-hours, he explained.

Santa Fe will also use the free time to iron out some of the bumps in a several-month project to switch over its 8,000-program Transportation Support System from a Unisys Corp. mainframe to an IBM Enterprise System/9000 Model 900 machine, Robinson said.

Cleaning shop

CSX Transportation, Inc. and Union Pacific also did housecleaning chores last week while they waited for a labor settlement. More than 400 members of CSX's 1,200-person IS department are unionized, but "so far, they are all on the job," said George Sekely, president of CSX Technology, Inc., the computer systems unit of the Jacksonville, Fla.-based railroad.

Sekely said he was confident that the strike would not last more than a few days, and then "everything will pick up its typical crazy pace."

In the meantime, operations were so stalled at Union Pacific in Omaha that the company implemented a management-only rule, where all nonmanagers stayed home, according to a company spokesman.

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AICorp, Aion to join forces

BY KIM S. NASH
CW STAFF

PALO ALTO, Calif. — Tough competition and the opportunity to cut costs by merging operations spurred knowledge-based application development tools makers AICorp and Aion Corp. to join forces last week.

Though on opposite sides of the continent, the two firms signed a letter of intent to merge — a deal estimated to be worth between $40 million and $50 million, according to James Gagnard, Aion's chief executive officer.

The new, as-yet unnamed company does not plan to converge the two firm's separate product lines, but it will proceed with each of their previously outlined strategic plans, he said.

Both 8-year-old, privately held Aion and 17-year-old, public AICorp sell development tools for mainframes, minicomputers, personal computers and Unix workstations.

The first steps

Once shareholders and the Securities and Exchange Commission approve the deal, which is expected by September, a single development and engineering team will begin enhancing AICorp's and Aion's respective flagship products in different directions from each other, Gagnard said. He will become CEO of the new firm, while Robert Goldman, CEO at Waltham, Mass.-based AICorp, will become chairman.

The goal of the new company will be to give users object-oriented tools and a fourth-generation language for building applications that automate business processes. Such programs would provide timely data for tasks such as production scheduling and business diagnostics, a spokeswoman said.

Noting that business process automation has become a focus for a crowd of vendors that includes the Big Six accounting firms and computer-aided software engineering companies, analyst Judith Hurwitz, president of The Hurwitz Consulting Group in Newton, Mass., nevertheless was hopeful that Aion and AICorp were on the right track.

The market lacks solid data access tools that do more than help report quarterly sales figures or build organizational charts, Hurwitz said.

The proposed deal calls for AICorp to issue approximately 7.2 million shares of AICorp's common stock to Aion shareholders in exchange for all outstanding shares of Aion. AICorp will also assume the outstanding Aion employee stock options, which will be exercisable for AICorp common shares.

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Hitachi unveils five air-cooled machines

BY JEAN S. BOZMAN
CW STAFF

SANTA CLARA, Calif. — Hitachi Data Systems Corp. last week turned on the fan to chill its mainframes — serving up five new air-cooled machines to complement its line of five water-cooled computers. The low-temperature lineup will roughly match IBM's mix of water- and air-cooled Enterprise System/9000 computers and give users more price/performance points.

HDS also added three water-cooled models, bringing its lineup to 13 machines. At the same time, the company renamed its mainstay products the GX mainframe series, designating air-cooled models with a "6" and water-cooled models with an "8" (see chart). Previous models were named the AS, the AS/XL, the AS/EX and the EX.

By rearranging its mainframe line, HDS improved price/performance, encouraging longtime customers to upgrade aging AS/XL or EX models to machines comparable to IBM's ES/9000 line. "The HDS line covers the same performance range as the IBM machines," said Bob Djurdjevic, president of Annex Research, a Phoenix-based market research firm.

"The significant thing is that the midrange products they're replacing were 1985-vintage technology," he added.

Prices for the new machines in the GX series range from $2.1 million for an entry-level GX 6115 with 21 million instructions per second (MIPS) performance to $12.9 million for the high-end 124-MIPS GX 8320. HDS will begin to ship water-cooled GX models in the third quarter. Shipments of air-cooled models are set for the first quarter of 1993.

Not in time

But the air-cooled models will come too late for Dialog Information Services, Inc., a Palo Alto, Calif., HDS customer that added a 40-MIPS IBM ES/9000 Model 480 in January. "The problem was that [HDS] didn't have the type of machine I needed last September or October," said Robert Feinstein, senior director of data processing for Dialog, an on-line database service subsidiary of Knight-Ridder, Inc.

The new HDS air-cooled mainframes were pretested in Japan, where they were announced by HDS parent Hitachi Ltd., Djurdjevic said. The Japanese machines were announced in March and will be shipped in August. By announcing them in the U.S. and Europe now, HDS will benefit from the marketing IBM has done for its ES/9000 air frames, introduced last year.

"They may end up being lucky," Djurdjevic said, "because their announcement dovetails with a pickup in demand for the IBM mainframes."

HDS will continue to sell its EX 11 through EX 44 models. Unlike the GX series, these low-end models, which range from 5 to 25 MIPS, will not support all ES/9000 features. However, they will support IBM's Escon (see story above). HDS executives said they believe these low-end machines will continue to attract users upgrading from aging IBM 4381-class machines.

Other users are waiting for HDS to announce that it will market an eight-way processor complex — something that HDS competitor Amdahl Corp. has already announced.

"We have such a large, integrated environment that we tend to push the envelope on the upside," explained Philip Newbold, vice president of information services at Kaiser Permanente of Northern California, a health care organization based in Walnut Creek, Calif. "We plan on going from an EX 420 to an EX 620 and then possibly to an eight-way — not only to get more horsepower, but also to save a buck or two on consolidating software licenses."

Keeping current

A sampling of Hitachi Data Systems Corp.'s GX mainframe line:

Model	MIPS*	Min./max. main memory	Temperature control	Min./max. channel
GX 6115	21	64/1,024	Air-cooled	8/64
GX 6425	72	128/1,024	Air-cooled	16/128
GX 8110	49	128/2,048	Water-cooled	32/256
GX 8320	124	512/2,048	Water-cooled	64/256

*MIPS ratings from industry sources

Source: Hitachi Data Systems

Feeling the heat

HDS has been under pressure to make its products compatible with IBM's fiber-optic channel architecture, known as Escon. That pressure intensified this month as IBM lowered Escon prices by reducing the number of fiber-optic channels needed to support the feature [CW, June 22].

Last week, HDS announced that it would deliver Escon support for disk drives and tape drives, provided by adapters, by the third quarter of next year. Fifty-five percent of HDS' estimated $1.4 billion in business comes from peripherals, the firm said. HDS said it will deliver Escon support on its mainframes by the third quarter of this year.

The adapters will allow users to mix-and-match IBM mainframes with HDS drives over Escon channels. Some HDS disk-drive customers have already turned to IBM Escon converters to create fiber-optic links with IBM ES/9000 mainframes. Adapters for the HDS 7980 disk-drive controller and the HDS 7490 tape drive will range in price from $12,000 to $31,000.

Plug-compatible competitor Amdahl Corp. has said it will deliver Escon support on its mainframes in the fourth quarter of this year. Amdahl began shipping IBM Summit-class 5995M mainframes late last year.

JEAN S. BOZMAN

Execs depart troubled lessor

CONTINUED FROM PAGE 1

upgrade this fall, and we're going to take a close look to make sure we have no liabilities should they default."

Gilmore said that "although Meridian has been a very good vendor in the past, things change." About a month ago, Gilmore said, he asked his firm's finance and legal departments to check the vendor out. "We began hearing rumors of financial problems — nothing concrete," he added.

Meridian executives said this examination will not reveal anything amiss. "We're not afraid to hold up our head to anyone," said John Peck, Meridian's executive vice president, who will be in charge of day-to-day operations when Ozark leaves. "We are one of the most profitable companies in the leasing industry, and we will remain that way."

Peck said that rumors of the $448 million company's financial woes probably started about eight months ago, when General Electric Capital Corp. made a bid for Meridian that was turned down in a dispute over the price offered, which one former Meridian executive said was around $200 million. Peck would not comment on that figure but said that GE Capital had "undervalued" Meridian.

In need of change

The ongoing changes are necessary, Peck said, because "the traditional IBM mainframe leasing market has become very narrow in terms of opportunities. IBM's become very aggressive." Jim Leman, Meridian's marketing director, said that new services would likely include financial services, a focus on larger accounts and an improved turnover of Meridian's $3 billion worth of used equipment.

"We will concentrate less on developing new accounts and renew our focus on existing ones," Leman said.

One consultant said Meridian's new directions are indicative of the troubles in the leasing industry as a whole. "The margins on deals are so small that everyone's scrambling," he said.

Although Meridian's two top executives are leaving, they will still "support" the firm, Peck said. "Kinzelberg is still providing a guiding hand for the company," he said. Kinzelberg will remain chairman emeritus.

Ozark's new venture, Aim Financial Corp. in Chicago, will provide financial services for corporations. Kinzelberg's new company, Sequel Capital Corp. in Meridian's hometown of Deerfield, will provide portfolio management. Neither Kinzelberg nor Ozark could be reached for comment.

At a glance

Meridian Technology Leasing Services

1991 revenue: $448M (down 23% from 1990)

1991 profit: $23M (up 17% from 1990)

Founded: 1979

Employees: 280

Put in charge

Taking over as Meridian's chairman is Patrice Courbey, who comes over from Meridian's European leasing arm, of which he was president. While at the European subsidiary, Courbey presided over some operations consolidation, giving rise to concerns that he might do the same at the U.S. company.

Peck disputed that, saying, "Courbey is a marketing man. We plan to really refocus on our customer base, providing services to help customers survive in a tough environment." Courbey did not return phone calls.

Meanwhile, the CDLA matter is still being contested. According to a CDLA spokesman, Meridian was expelled in May after a "long" investigation into the alleged ethics violation — which the spokesman would not detail — and a vote of the full membership in May. Expulsion is the organization's strictest sanction.

Peck responded that the issue has to do with an equity investor, not an end user, and that Meridian resigned because the matter was, and still is, in litigation. Discussing it in front of the CDLA would not have been appropriate, he said.

Peck added that "very shortly, we will file a counterclaim" against the other party. "We do not intend to put up with our reputation being kicked around, and we will pursue it vigorously."

CLARIFICATIONS

The following is a complete list of the winners of the *Computerworld* Smithsonian Awards published June 15: Integrated Surgical Systems, Inc., Sacramento, Calif.; Westinghouse Electronic Corp., Pittsburgh; Federal Express Corp., Memphis; Georgia Institute of Technology, Atlanta; Aeroquip Corp., Jackson, Mich.; Avid Technology, Inc., Burlington, Mass.; MIT Technology Media Laboratory, Cambridge, Mass.; Kmart Corp., Troy, Mich.; Ohio Center of Science & Industry, Columbus, Ohio; Wilderness Society, Seattle; American Express Co., New York; National Institutes of Health, Washington, D.C.

.....

A June 1 article incorrectly stated that Borland International, Inc. did not start developing a Microsoft Corp. Windows version of its dBase database program until after it acquired Ashton-Tate Corp. last year.

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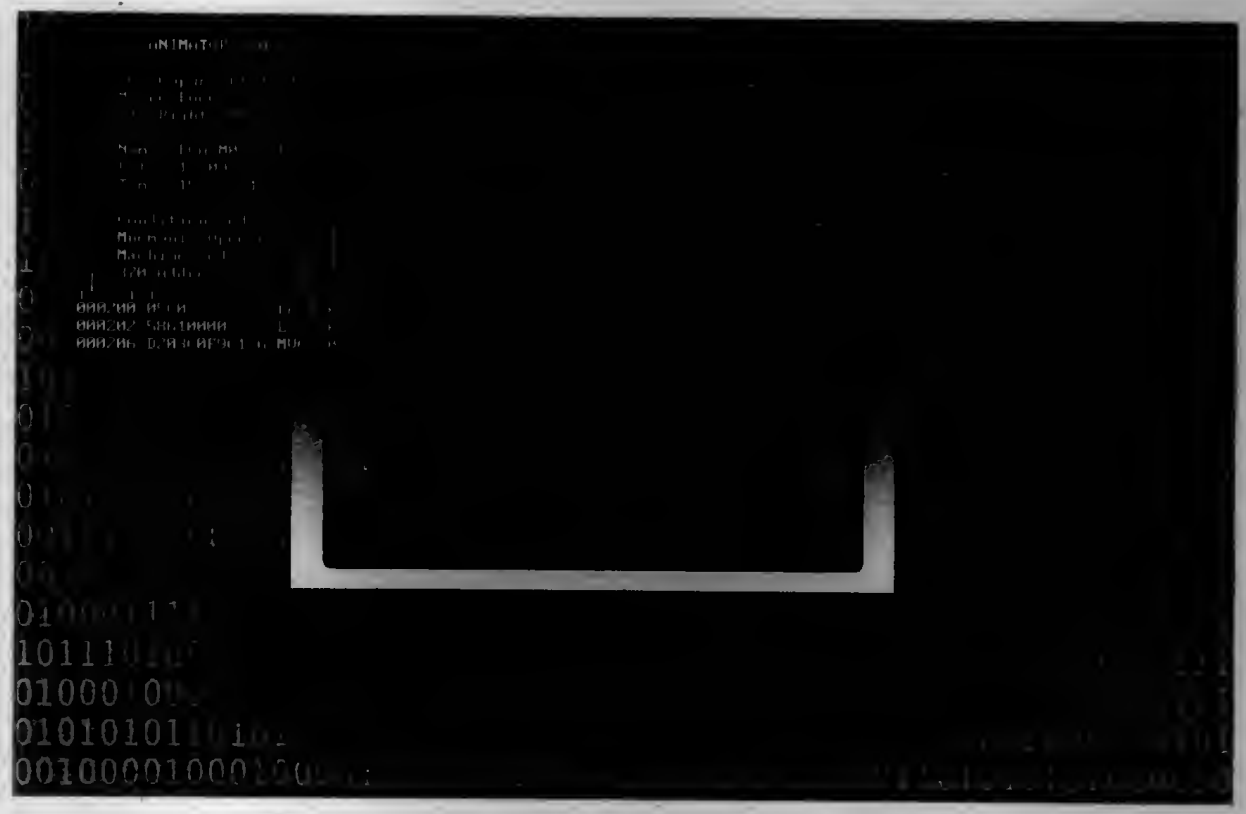
Intellicorp, Inc. and Texas Instruments, Inc. are not discussing a merger, as reported on June 15. However, talks are under way about a jointly developed software link between the two companies' products.



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Users focus on desktop OS

CONTINUED FROM PAGE 1

Microsoft Windows 3.1 customers contacted last week said they have experienced typical new product glitches but are moving ahead with implementation plans. None reported disabling problems.

"We are in the process of deploying [Windows 3.1] as I speak," said Robert Fulton, vice president of PHH Fantus, who discovered "minor compatibility problems" with some applications that software vendors "quickly addressed."

Royal Bank of Canada has reported about a dozen problems with OS/2 2.0 to IBM, but company officials described its rollout as "going rather well."

"I'd say it's perfectly normal," said George Oliver, manager of information delivery technology at the bank. "There are four categories of severity, and if it's a showstopper, it's a Severity 1," he said of the 2.0 bugs. "We had one of those in our testing, and they came up with a fix."

However, two other IBM OS/2 2.0 users said they felt concerned enough about bugs, particularly those related to the Workplace Shell, not to release Version 2.0 to end users on a wide-scale basis. "I would say it is of good quality, but it is not ready to end up on clients' desks," said Wayne Robinson, manager of software systems at Prudential Investment Corp. "We would give it to IS people, but it isn't ready for our production environment yet."

Unlucky seven

Robinson said he has notified IBM of seven problems that need fixes. One problem lies within a storage allocation procedure that kicks in when "all the pretty icons [come] up. It's very graphic . . . there is a problem releasing the storage that was obtained to show you all those icons. The workstation ends up locking up."

Sears Technology Services, Inc. is adding "several hundred" 2.0 users each month for parent company Sears, Roebuck and Co., according to Gary Weis, senior vice president of networking and technology services. "We are migrating from the early code to the [general availability] code, and that is going fine," Weis said. "Anytime you install that much software, there'a bound to be a few problems, but it's certainly been well within accepted bounds."

An IBM spokesman said that of approximately 30,000 support calls it has received, "less than 1% were pervasive" problems or in need of immediate attention.

Lee Reiswig, assistant general manager of programming for IBM's Personal Systems line of business, said issues with the Workplace Shell may be the result of its being a new technology within OS/2 that some customers are not yet comfortable with.

"I'm not aware of any serious defects within the Shell," Reiswig added. "There have been some minor things."

On the Microsoft Windows front, five users contacted said they are on schedule with their 3.1 rollout to end users. "We are starting to move it out onto the desktops of our people," said Craig Goldman, chief information officer at The Chase Manhattan Bank NA, which has 20,000 Windows users. "It is stable enough and better than the old version."

Keep on login

Windows 3.1 is supposed to be an incremental upgrade, but a variety of products are expected from Microsoft in the near future that could add major functionality to the Windows line.

A product called Microsoft WinLogin, which should be available by the end of August [CW, June 22], will allow users to have their Windows configuration move with them instead of being tied to a specific machine, sources said. WinLogin will reportedly keep a database of configuration information, such as initialization file settings, that will be keyed to the user'a name. As a result, mobile users will be able to log in at any Windows workstation and see their familiar Windows environment. Sources also said the product would be server-licensed and priced at approximately $149.

Microsoft is also reported to be working on projects code-named Winball and Sparta, which are peer-to-peer network-enabled versions of Windows 3.1 with file and resource sharing as well as some groupware features built in. Users would need only a supported network adapter card and cable to build a peer-to-peer network.

The products could theoretically help Microsoft break new ground in the networking market. "Strategically, Microsoft has been shut out of the LAN market" by Novell, Inc., said Mark Mackaman, a partner at Redmond Group in Redmond, Wash. Novell'a dominance would make a direct assault difficult; therefore, he said, Microsoft's plans are "Don't do a frontal attack. Attack at the sides. Bundle the networking stuff in your operating system."

Indeed, such peer-to-peer support has already been announced for Windows New Technology (NT), slated for release before year's end.

Several workstation software vendors, including Computervision, Inc., Intergraph Corp., Interleaf, Inc. and Congruent Corp., recently announced that they will make products available for the NT platform.

CHRISTOPHER LINDQUIST

Did they or not?

IBM came out swinging last week at PC Expo, boasting that 700,000 copies of OS/2 2.0 had shipped since its March 31 availability date.

Some analysts were skeptical of the numbers but acknowledged that IBM could be building momentum. Will Fastie at Alex. Brown & Sons, Inc. said this was possible, but he suggested that a significant percentage of those sales were probably upgrades. He added that the pace of sales should slow in the coming months.

"For OS/2 coming out of the block, that is a very significant number," said William Bluestein, a senior analyst at Forrester Research, Inc. in Cambridge, Mass. "That means they are on a run rate to go over a million this year."

IBM also confirmed that at least three new features for 2.0 will ship in the fall, including support for Microsoft's Windows 3.1. Also expected is the full-blown 32-bit graphics engine and video support for 2.0 multimedia extensions.

Audio support for 2.0 multimedia is still on schedule for shipment by the end of this month.

ROSEMARY HAMILTON

The Great Debate

BY MICHAEL FITZGERALD
CW STAFF

NEW YORK — The U.S. needs a technology policy, but there are as many opinions about what form it should take as there are transistors on an I486.

A panel of six dignitaries from industry, academia and government generally agreed last week that a technology policy could help revive the economy and prevent a further slide in U.S. technological leadership. But they differed sharply on how much of a hands-on approach government should take.

One economist said the technology policy issue misses the point until it becomes clear whether computers actually enhance productivity.

The panel, titled "The Great Debate: Should the U.S. have a Technology Policy?" was sponsored by *Computerworld* and Computer Associates International, Inc.

Participants agreed that useful government initiatives included tax incentives for high-technology firms and lower capital gains taxes for investors in high-tech start-ups. Yet they all also agreed that too much government intervention would do more harm than good.

"The peril is . . . not that we're abused by foreign competition but rather the utter failure of companies to effectively use technology. This is a crisis of users, not just vendors," said Stephen S. Roach, principal and senior economist at Morgan Stanley Group, Inc. A strict policy would protect ineffective vendors and cause corporations to spend more money for technology that brings them little in return, Roach said.

The current U.S. policy is "breakthrough-oriented" and pays too little attention to commercializing technologies, said Sen. Jeff Bingaman Jr. (D-N.M.), chairman of the Senate Defense Industry and Technology Subcommittee. He called for government involvement in forming regional technology alliances and support for small manufacturers.

Branscomb: *Business must help government 'learn how to be a good policymaker'*

Harvard University Professor Lewis Branscomb agreed, calling U.S. policymaking "a top-down, centralist strategy. The business community has to help government learn how to be a good policymaker."

Yet while the consensus was in favor of creating government policy driven by recommendations from industry policy, the specter of Big Government loomed.

"It's a little hard to say government intervention doesn't do any good," admitted Doug Michels, executive vice president of The Santa Cruz Operation (SCO), who pointed out that government procurement policies have helped SCO immensely. "But the greatest oxymoron is the guy who says, 'I'm from the government and I'm here to help.' "

Roger Sippl, chairman of Informix, Inc., said his biggest fear was that other issues, such as mandating social activism from companies, would be incorporated into a technology policy.

Dell, Everex meet Compaq's price challenge

But corporate users with high-end computing needs are looking at more than just price

BY CAROL HILDEBRAND
and MICHAEL FITZGERALD
CW STAFF

NEW YORK — Dell Computer Corp. and Everex Systems, Inc. wasted little time in returning Compaq Computer Corp.'s recent product salvo last week by announcing low-end desktop families of their own, as well as significant price reductions on the part of Dell.

Although the low-cost lines are sparking interest among price-conscious users, many say the corporate environment demands a different kind of box.

"We look for the high end," said Jeff Newman, assistant vice president at Barclay's Bank in New York. "We're not interested in one- or two-slot machines. Price is a concern, but configuration is more important."

Dell will cut prices for the fifth time in 1992, making across-the-board cuts of 8% to 20%. This will bring a 33-MHz 80386DX-based Dell 333P to $1,999, 27% less than a similarly configured DeskPro/I from Compaq, for instance.

Dell's new Dimension line, to be sold through direct marketing, consists of five desktop systems, three tower-style servers and two notebooks. Prices will start below $1,300 for a desktop and $1,500 for a notebook (see chart). In addition, Dell will expand its toll-free technical support and increase its custom services for certain customers.

Everex's product blitz encompasses the MaxLogic family, low-end personal computers that will be sold through the mass-market channel. Four boxes, ranging from a 16-MHz 386SX to a 33-MHz I486DX PC, are available immediately, with four more slated for late summer availability. DOS, Microsoft Corp.'s Windows and Microsoft Works will be preinstalled.

Also unveiled was the Carrier SL/25, a 5.8-pound notebook with a removable hard drive and a trackball.

Responding in kind

Dell and Everex are matching Compaq's challenge in the low-end market

Dell Dimension
Desktop 386SX 25 MHz, 2M bytes RAM, 80M-byte hard drive, DOS/Windows bundled, $1,259
Notebook 386SL 20 MHz, 2M bytes RAM, 40M-byte hard drive, 6.3 lbs., $1,499
Everex
Max Logic 386SX 16 MHz, 1M byte RAM, 40M-byte hard drive, DOS/Windows, Microsoft Works, $999
Carrier Notebook 386SL 25 MHz, 4M bytes RAM, 80M-byte hard drive, 5.8 lbs., $2,699

The second wave of products included a five-box shot in the arm for its Tempo line and the Step MPFT 2001, a fault-tolerant system designed specifically for Novell, Inc.'s NetWare 3.1 and coming SFT Level III version.

Both companies said the announcements were more than just a reaction to Compaq's new low-priced models (CW, June 22), although Genelle Trader, vice president of marketing at Everex, did acknowledge that Compaq's lower than expected price tags triggered a last-minute adjustment to their machines.

William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass., agreed. "This is the other shoe to drop on the low-end clonemakers," he said, adding that companies such as Dell would survive what is widely expected to be a PC industry shakeout because they "have more brand recognition. Users will flock to this stuff."

Joe King, assistant vice president of information systems at Continental Insurance Co. in Neptune, N.J., had just completed an evaluation of his company's standard vendor, IBM, with clone pricing. With an IBM discount, "we came to the conclusion that what we're paying for IBM is a very small premium over clone prices — for not-so-equivalent equipment," King said.

Pen-based products previewed

Pen computing made further moves toward the mainstream at PC Expo, with several vendors displaying new products, including the following:

- Grid Systems Corp.'s recently created software division announced its first significant licensing agreement. NCR Corp. said it would remarket and distribute Grid's PenRight operating and application development environment with its System 3125 pen-based systems.

- NEC Corp. used PC Expo to show off a full pen-based system. The product, code-named Peabody, comes in a notebook size. The prototype runs either Go Corp.'s PenPoint or Microsoft Corp.'s Windows for Pen Computing. The 4-pound box runs on a 3.3V 386SL from Intel Corp., has two PCMCIA Type 2 slots for data transfer and may contain a 1.8-in. hard drive, although NEC refused to confirm this. NEC is debating whether to use a three-hour or six-hour battery.

- Sharp Corp. will move into the pen market in the fourth quarter with a pen-capable version of its Wizard. The Wizard 9600 demonstrated at PC Expo offered a larger keyboard, a 53 line by 30 line touch screen and infrared communications technology. The expected list price for the product is $699.

MICHAEL FITZGERALD

Informix's Sippl *fears a technology policy overseen by the government*

"If the government said 'We're going to give you money to do with whatever you want,' that would help," Sippl said, half-seriously.

Scientist and author Gordon Bell advocated a policy that would help move the U.S.' huge amount of research and development spending (more than the other Group of 7 nations combined, according to one panelist) into the commercial sector.

"It's hard to get people out of government labs, and technology transfer doesn't happen without the transfer of people," Bell said.

Sippl observed that "industry isn't very interested in government telling it what to do, so ideally an industry panel would tell government what not to do."

The panelists said the government should focus on policy-making rather than on situational intervention, which can easily backfire.

An audience member raised the issue of last year's decision by the government to slap a 62% tariff on active-matrix flat panels from Japan. Intended to help tiny U.S. makers of the panels survive dumping by major Japanese companies, the policy backfired because American manufacturers simply moved the manufacturing of computers with active-matrix displays offshore and therefore completed machines were not subject to the steep tariff.

"That was shooting ourselves in the foot, yes," Bingaman acknowledged.

Bell *advocates moving R&D spending to the commercial sector*

Still, some of the panelists thought the government was capable of creating policies that could boost U.S. competitiveness in the world marketplace and keep the computer industry from following consumer electronics into the realm of history.

"Most of the pieces of what we'd like to see are in place — and having no effect," Branscomb acknowledged. "But they are important and deserving of attention."

Photos by Eric Schnakenberg

Perot wins straw poll

True to PC Expo form, attendees at this summer's show were treated to both the serious and the not-so-serious sides of the computer industry. Here are a few samples:

▶The ShowNet demonstration network offered attendees a chance to get news, locate booths, exchange electronic mail and vote for president. As of Wednesday afternoon, Ross Perot led with 42% of the vote, Bill Clinton had 22% and George Bush trailed with 17%. Was it an electronic town meeting?

▶The Windows Users Group Network based in Media, Pa., demonstrated System Engineer, a set of Windows system configuration utilities that ease modifying aspects such as Windows memory, keyboard and initialization file settings. The product should be available in about a month for a list price of $79.95. Group members will receive System Engineer as part of their membership.

▶OS/2 could get a boost soon. A high-ranking Dell official said the company is very close to agreeing to offer IBM's OS/2 2.0 as a bundled option with systems in the U.S. The official said that while Dell had not seen a huge demand for OS/2, some significant customers wanted it.

▶Sharp cut prices on its active-matrix color notebook, putting its list price at $4,799, the lowest of the active-matrix vendors so far. Dell and AST said they are hard at work building active-matrix notebooks that will ship this year. One has to wonder about AST, since the company says its passive-matrix notebook is selling at the hearty clip of 5,000 units a month.

▶CompuAdd's Express mail-order division is building both a new desktop and a new notebook around Texas neighbor Cyrix's Intel-mimicking 486DLC. The notebook will cost $2,695, the desktop $1,695.

▶The Video Electronics Standards Association announced the VL-Bus local-bus specification, which supports an I/O bandwidth of more than 130M byte/sec.

Router companies eye high-speed switches

BY JOANIE M. WEXLER
CW STAFF

The top two router companies are considering eventually developing full-blown, high-speed switches to satiate user enthusiasm for using switching technologies rather than shared-medium local-area networks to handle emerging multimedia applications, *Computerworld* has learned.

Boardroom discussions about building Asynchronous Transfer Mode (ATM) switches — not just router interfaces linking LANs to the high-speed switched networks — are under way at rival firms Cisco Systems, Inc. and Wellfleet Communications, Inc., the presidents of the two companies said in recent interviews.

ATM is an emerging high-speed switching technology likely to one day displace today's shared-bandwidth LANs to better accommodate delay-sensitive voice and video applications. "It will be the Lotus 1-2-3 of multimedia that will cause ATM to appear on the desktop," Wellfleet President Paul Severino predicted. Wellfleet's charge is to "connect whatever is running on the desktop. If that is ATM, so be it," he added.

Wellfleet has already completed a good chunk of the work. The company has modified the design of its high-end router to allow it to function as a frame-relay feeder switch in MCI Communications Corp.'s frame-relay network. The carrier's frame-relay service is slated to be announced during the next few weeks, MCI said.

The Wellfleet box "sits at the boundary of the network to support frame-relay traffic going in and SMDS [Switched Multimegabit Data Service] traffic going out," explained Mark Sitko, a senior manager of product planning and development at MCI. This means the Wellfleet switch "is enforcing the committed information rate and driving the billing" in the network, he said.

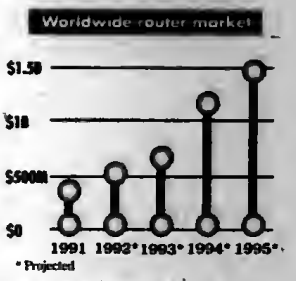
This development means that "Wellfleet is blazing a new trail for the router vendors to act as general-purpose wide-area switches," said Rick Malone, a principal at Vertical Systems Group in Dedham, Mass.

Cisco President John P. Morgridge said his company is considering following an upcoming ATM interface announcement with the creation of a proprietary local ATM switch that has routing functions bundled into it. However, he said he is concerned that users might give up some functionality in using a lower level — though higher speed — switching function, such as network partitioning for security.

"The Cisco switch will do filtering, but initially there will be no [traffic] prioritization" as there is with routing, he said.

However, "anything that would facilitate handling rapidly increasing use of bandwidth would be positive," commented Howard Maynard, senior vice president and director of MIS at worldwide New York-based advertising agency Young & Rubicam, Inc., a large Cisco user.

On the right route
Router growth is expected to soar during the next few years



* Projected
Source: The Yankee Group CW Chart: Janell Genovese

Neither Morgridge nor Severino would estimate when their companies might announce the switches, but both said ATM router interfaces are imminent. Severino said Wellfleet's ATM interface will be announced within three to four months.

To date, Retix is the only router vendor to have announced such an interface; thus, Wellfleet shop Bear, Stearns & Co. in New York said it is having discussions with Retix because it intends to do ATM in the local area "in a big way," according to Ken Starkey, associate director of communications.

Bear, Stearns and several other companies said they will probably leapfrog still-fledgling 100M bit/sec. Fiber Distributed Data Interface (FDDI) LANs for ATM, depending on how well the timing of their application needs meshes with the arrival of the accommodating technologies.

For example, Starkey said, "Local switching will be our first ATM implementation." The firm is already testing local ATM switches from Adaptive Corp. and other vendors.

IBM delays new router

CONTINUED FROM PAGE 1

Network Architecture (SNA) environments to local-area networks.

Jon Fjeld, IBM's director of network routing systems, denied reports that the hang-up with IBM's 6611 Network Processor — originally slated to ship last Friday — is due to performance problems. "We simply must do more testing to convince ourselves that we have a fully integrated set of functions," Fjeld said. "The fact is, we have no performance problems right now."

Some IBM faithful are chagrined about having to delay integrating their large IBM environments with their LANs, but the industry is not surprised that smoothing out the wrinkles in sophisticated router technology is taking IBM longer than the vendor anticipated.

"The main thing this hurts is IBM's credibility," said Robin Layland, engineering consultant at The Travelers Corp., a large IBM shop in Hartford, Conn., awaiting the IBM bridge/router.

Layland "is disappointed" because Travelers needs IBM's scheme for reducing NetBIOS broadcasts to unclutter the insurance firm's internetwork. "NetBIOS is now eating up 20% to 30% of our 56K bit/sec. lines, and we don't want to have to spend the money to upgrade them," he explained.

However, Travelers is willing to continue fiddling with the network to keep the link upgrades at bay until IBM ships the 6611 because "for a three-month delay, it doesn't make sense to abandon IBM," Layland said.

Some said the postponement of IBM's router vindicates users who made the decision early on not to wait for IBM to begin building their internetworks.

Too little, too late

"We've been in the router world for years; IBM is just too late," said Ken Starkey, associate director of communications at Bear, Stearns & Co. in New York. And the First National Bank of Maryland in Baltimore, a large IBM shop, installed IBM-oriented CrossComm Corp. bridge/routers in the absence of an IBM offering and sees no reason to rethink its strategy.

However, "The mere fact that IBM has a router is a sign of the times that companies are going to route their SNA protocols," said Steve Coppel, manager of the bank's LAN and wide-area network communications department. "But that doesn't necessarily mean they're going to use the 6611 to do it."

The shipment lag buys time for IBM's already flourishing competitors to further saturate the market, making it more difficult for IBM to penetrate existing router accounts. This situation plays into what router market leader Cisco Systems, Inc. President John P. Morgridge stated as his firm's main strategy: "We're trying to capture the majority of the emerging market so that we have the premier opportunity for follow-on sales," he said.

Delivery route

IBM's revised router delivery schedule bumps back by three months both iterations of the planned releases announced in January:

Sept. 25 (original ship date June 26):
- Routing of Transmission Control Protocol/Internet Protocol, Digital Equipment Corp. DECnet Phase IV, Novell, Inc. IPX, XNS and IBM's Data Link Switching mechanism for transporting its own SNA and NetBIOS protocols across Token Rings.
- Support of industry-standard inter-router protocols OSPF and RIP.
- Source-route bridging among Token Rings.

Jan. 29, 1993 (original ship date Oct. 29, 1992):
- Routing of Apple Computer, Inc. AppleTalk Phase 2 over Token Ring and IBM NetBIOS over Ethernet.
- Support of V.35 high-speed serial interface.

JOANIE M. WEXLER

Stratus bases system on HP RISC chip

BY MELINDA-CAROL BALLOU
CW STAFF

MARLBORO, Mass. — Stratus Computer, Inc. may have upstaged its upcoming announcement of Intel Corp. 1860 XT-based computers last week by revealing plans to base a future generation of fault-tolerant systems on Hewlett-Packard Co.'s Precision Architecture-RISC microprocessors.

The PA-RISC-based systems will not be out until 1994 or possibly 1995, said Jim Holley, Stratus' director of system products. The firm, which only last year transitioned from Motorola, Inc.'s 68000 to the Intel reduced instruction set computing chip, plans to disclose a second generation of 1860 XT-based systems next month. "There is the possibility of additional Intel-based systems before the HP-based products arrive," Holley added.

Stratus will continue to support all three product lines at that time and will address migration issues by offering source-code compatibility across the product lines, Holley said. Moving to the PA-RISC microprocessors will offer better price/performance through the end of the 1990s, he added.

Industry analysts applauded the decision as a long-term strategy for Stratus, but they predicted that in the short term the move could slow sales.

"Many customers may choose to wait for the PA-RISC systems so that they will have to make only one migration from the XA2000 [Motorola-based] systems to the PA platforms," said Carolyn Osgood, a senior analyst at International Data Corp.

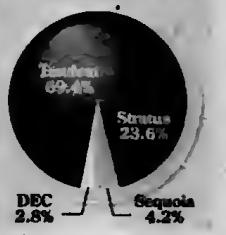
Users said they are not yet ready to pass judgment.

"We have seen the 1860 product, but have not yet tried to benchmark applications on it, and are considering doing so," said James Crofwell, executive vice president of information systems at the Boston Stock Exchange. "We haven't sorted it out, but [the PA-based systems] are probably beyond our time line for upgrading."

Stratus will have to bring its PA-based systems out in a timely fashion, Osgood said, because its competitor, Sequoia Systems, Inc., also based here, expects to ship systems based on HP's PA-RISC architecture in late 1993.

Up time
Stratus is looking to PA-RISC to narrow the gap with Tandem

Percent of market share by 1991 revenue (Total: $1.5B)



Source: Dataquest, Inc.

Court ruling weakens copyright protection of source code

CONTINUED FROM PAGE 1

finding that Altai's product, Oscar 3.5, did not infringe on the code or structure of CA-Scheduler.

Arnold S. Mazur, executive vice president at CA, said the company would reappeal the court's decision. "I think it's probably a decision where the appellate court doesn't understand the consequences of the decision and its negative impact on the software industry," Mazur said.

Although the decision allows for more limited software copyright protection, many legal experts said the Second Circuit Court made the correct ruling. "It's a dramatic reduction in the scope of copyright protection," said Barry Rein, an attorney at New York-based Pennie & Edmonds. "If it's art, you should copyright it. If it's a technology, you should patent it."

Indeed, many legal experts said the decision may force more software companies to patent their inventions instead of using the more amorphous copyright protection. However, the patent process is long and expensive, without any promise that the technology will eventually be patented.

"A patent requires long and rigorous study, with people in the Patent Office who are trained to recognize what is unique and what is not," said Jon Stark, a colleague of Rein's. Added Stark, "With copyright, you mail in a two-page form and a $20 check, and it's much less clear what is protected. With a patent, everybody knows what's covered."

The sticky wicket with patents, Rein explained, is that a software program that has been on the commercial market for more than a year cannot be patented either by the inventor or by anyone who acquired the product. Thus, a company such as CA, which acquires a good deal of the software that it sells, would not be able to use patent protection. Legal pundits said this is a main reason why CA protested the copyright decision so vigorously.

"They're appealing to public policy and apple pie when they really have their own self-interest at heart," Rein said.

Mazur disagreed: "Patent law is appropriate for certain things. I suspect that we will still rely on copyright law and straight secrecy law for protection."

The decision is not expected to impact pending "look-and-feel" litigation between Lotus Development Corp. and Borland International, Inc. or litigation between Apple Computer, Inc. and Microsoft Corp. and Hewlett-Packard Co. In fact, one vendor said the decision may not have much bearing on vendors' day-to-day decision-making. "We don't expect it to affect how we develop products or do business," a Lotus spokesman said.

Legal lowdown

1982 — CA introduces CA-Scheduler.
1982 — Altai begins marketing its own job-scheduling program called Zeke.
1983 — James P. Williams, former CA employee and current president of Altai, recruits Claude F. Arney III, a CA computer programmer, to assist Altai in designing an MVS version of Zeke, to later be named Oscar.
1984 — Arney leaves CA to join Altai.
1984 — Arney allegedly employs CA's Adapter code, used with CA-Scheduler, to design Oscar.
1985 — Altai ships Oscar 3.4.
1988 — CA secures copyrights on Versions 2.1 and 7.0 of CA-Scheduler.
1988 — CA files lawsuit for trade secret misappropriation and copyright infringement against Altai.
1989 — On advice from legal counsel, Williams initiates Oscar's source-code rewrite, which is completed in November.
1991 — Judge awards $364,444 to CA for infringement of source code. However, judge rules that Altai did not violate copyright infringement with Oscar 3.5. CA appeals that portion of the verdict.
1992 — U.S. Court of Appeals for the Second Circuit upholds earlier decision on Oscar 3.5.

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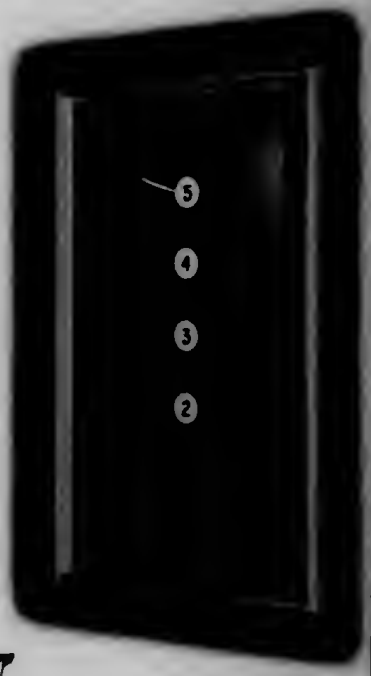

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NEWS SHORTS

Proginet unveils software meter

Proginet Corp., a developer of open systems connectivity software for IBM host systems, last week introduced Software Meter, an MVS/ESA-compatible software utility that measures how frequently mainframe software is used. It provides vendors with five pieces of information on customer software use. Computer Associates International, Inc. said it ended talks with Proginet to use the software because it is developing similar products.

DEC bites into Olivetti

Digital Equipment Corp. and Olivetti USA last week announced an alliance under which DEC's next-generation Alpha RISC technology will become the basis for future Olivetti products. DEC will supply chips, systems and basic networking software to Olivetti. DEC also announced that it will become a shareholder for up to 10%, or approximately $300 million, of Olivetti's stock.

Former Olivetti CEO dies

Vittorio Cassoni died Sunday in Milan of a brain tumor at age 51, the *Financial Times* reported. He started his career at IBM Italy, moving to AT&T in 1986 to head up its computer division. In 1988, he moved back to Ing. C. Olivetti C. SpA in Italy as chief executive officer. Earlier this year, Cassoni went to Xerox Corp., where ill health forced him to leave that post within days.

Consortium tests network loads

A group of military, industrial and academic institutions has formed the Multidimensional Applications and Gigabit Internetwork Consortium, a U.S. Department of Defense-funded project to explore how high-speed local- and wide-area network equipment reacts and interacts under a full application load. In one planned application, visual data of various terrains will be gathered, processed and presented as dynamic, real-time visualizations at computer centers in different parts of the country. The results of the trial will contribute to the deployment of future commercial and public-sector high-speed services, consortium officials said.

Revenue slides at Cognos

A bumpy transition to desktop and Unix-based development tools combined with flat sales of products for proprietary operating systems caused a quarterly profit drop at Cognos, Inc. Its net income for first-quarter 1993 plunged to $245,000 from $646,000 for the same period last year. Sales slipped slightly, from $35.9 million to $35.4 million. Chairman Michael Potter said Cognos will step up its efforts in the Unix and IBM Application System/400 markets, where revenue grew significantly during the quarter.

Banyan beefs up support

In the wake of a user group meeting stressing the need for additional support of Banyan Systems, Inc. Vines networks, Banyan has formed support alliance partnerships with Cabletron Systems, Inc., Dell Computer Corp., FairCom Corp., Proteon, Inc. and Oracle Corp. The partners will share support technology, expertise and training to benefit mutual customers.

Short takes

Hewlett-Packard Co. cut prices up to $500 on its current HP 700/RX station line and added a $3,995 gray-scale model to its HP 700/RX RISC X family. . . . **Calera Recognition Systems, Inc.** in Sunnyvale, Calif., and **STF Technologies, Inc.** will jointly develop and market fax-based communications products for **Apple Computer, Inc.**'s Macintosh family. . . . **Sybase, Inc.** is readying a maintenance upgrade of its 4.9 SQL Server, called 4.9.1, due in the fall. . . . **The Santa Cruz Operation** will ship its Open Desktop Release 2.0 this week. . . . **Gupta Technologies, Inc.** said it will support IBM's OS/2 2.0 across its product line. SQLBase for OS/2 2.0 is slated to ship in first quarter 1993.

Change in air on net management

Improved version of SNMP is causing uproar among vendors and users

BY ELISABETH HORWITT
CW STAFF

Network management vendors are expected this week to get their first glimpse of a new, improved version of Simple Network Management Protocol (SNMP), an enhancement that could become the next dominant network management standard — and wreak a little industry havoc along the way.

The brainchild of four major software developers, Simple Management Protocol (SMP) is already causing vendors to freeze their SNMP products and end users to reconsider their network management strategies, according to Edwin Mier, president of Mier Communications, Inc., a Princeton Junction, N.J., consulting firm. This is happening before SMP's official submission to the Internet Engineering Task Force (IETF), the official SNMP standards body.

SMP differs from SNMP by filling in some major functional gaps, including information sharing between two network management stations; collection of large amounts of data in bulk instead of one piece at a time; and security features that are now available through the recent IETF standard Secure SNMP, according to Jeff Case, president of SNMP Research, Inc., one of the four developers.

United Parcel Service, Inc.'s enterprise network management system, now in the planning stage, "would definitely have a place for improved SNMP if these people can develop products quickly," said Marc Dodge, UPS' manager of local-area network and personal computer systems. Dodge said that SMP's nonstandard status does not bother him, pointing out that users have to do some tweaking now to tie together various versions of SNMP.

Wielding a heavy stick

SMP could put the kibosh not only on the current SNMP but also on Common Management Information Protocol (CMIP) by eliminating the last few buying incentives the Open Systems Interconnect (OSI) protocol previously offered users over SNMP.

SMP may represent more of a threat than a promise to companies now planning network management systems around CMIP. And that group may comprise a significant number: Of 200 network managers surveyed by International Data Corp. in Framingham, Mass., late last year, 57.5% said support of OSI network management standards was critical.

Motorola, Inc., for example, has been planning to use CMIP to integrate different network management products into one corporatewide system as soon as CMIP-based products become available, said Jim Moorhouse, manager of network management strategies. "We didn't think SNMP was robust enough" for the role, he added. Now the advent of SMP threatens to "get us off the track of [standardized] interoperability between management systems because it could divide the industry into separate camps," Moorhouse said.

SMP is already dividing the SNMP vendor community.

Some companies, such as Digital Equipment Corp., plan to implement the new protocol as soon as they have tested it; others, such as Cabletron Systems, Inc., prefer to wait for the protocol to go through IETF's formal draft proposal process. SMP's developers expect to begin shipping the protocol to their customers this week as a free upgrade, Case said. They will not wait for the formal approval process, which can take nine months or longer, he added. Indeed, IETF as yet has made no commitment to SMP.

The longer the industry takes to coalesce around SMP, the longer some users will end up maintaining a mixed SMP/SNMP network management environment. SMP developers claim to have paved the migration path by basing SMP largely on SNMP and by providing a "proxy agent" that translates between the two systems.

But such a gateway can slow down communications among SNMP devices, Mier said. The other option is for users to implement both SMP and SNMP on their network management systems, developers said.

Vendors will get to view SMP and possibly form an IETF task force to evaluate the protocol as a standard at the IETF's meeting the week of July 12.

NCR, Microcom announce remote network monitoring

BY ELISABETH HORWITT
CW STAFF

Both Microcom, Inc. and NCR Corp. last week announced local-area network workstation management products that promise to save network administrators a lot of shoe leather.

Microcom's LANlord and NCR's StarSentry Client Manager are said to enable network managers to view a remote workstation's software and hardware configuration and present activity in real time without leaving their desks or interrupting a user's work.

"I think LANlord represents a breakthrough in terms of being able to actively see what a workstation is doing and changes that are taking place — whether they are done by the user or a virus," said Michael Wyffels, a manager of enterprise network computing at First Data Corp., which beta-tested the product.

LANlord's ability to collect configuration information from multiple remote workstations is particularly useful during a software upgrade, Wyffels said.

Background reporter

Both LANlord and StarSentry Client Manager consist of software that runs in background mode at each workstation and reports configuration changes and problems automatically to a central, graphics-based management workstation.

This ability to automatically report changes and problems without requiring the management station to log on to the remote system is what differentiates these products from current ones, said Joe Gottlieb, an analyst at Meta Group, Inc. in Westport, Conn.

Both products provide the following capabilities:

- Monitoring of hardware and software configurations for inventory purposes and to enforce software group licensing limits.
- Reporting a workstation's current status, performance and abnormal conditions.
- Monitoring usage levels of software, memory and disk space.
- Ability to send alerts to a Simple Network Management Protocol-based system. StarSentry also interfaces with IBM NetView.

StarSentry Client Manager manages OS/2 and DOS workstations on a Microsoft Corp. LAN Manager network. LANlord manages DOS and Microsoft Windows-based workstations on Novell, Inc. NetWare LANs. Support for LAN Manager and OS/2 is scheduled for later this year.

Client Manager is priced at $164,000, which includes a management station and gateway for 50 LANs. LANlord is priced at $999 for a 10-user license.

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Copper FDDI rivals ally against ATM threat

BY JOANIE M. WEXLER
CW STAFF

BLOOMINGTON, Minn. — The recent white flag-waving by two rival technology camps, which are seeking to spur 100M bit/sec. Fiber Distributed Data Interface (FDDI) networks over copper wiring, prompted the national FDDI standards committee to ratify a key component of the standard last week at its meeting.

The near-unanimous committee vote on a standard encoding scheme could pave the way for a fleshed-out standards document by October, according to committee member David Husak.

The move was needed to hurry the standard for supporting FDDI networking characteristics less expensively over both shielded twisted pair and data-grade unshielded twisted pair so that FDDI does not get leapfrogged by other technologies, according to analysts.

In light of the laboratory test results of their previously separate proposals before the American National Standards Institute for a combination shielded/unshielded twisted-pair specification, vendor groups led by Cabletron Systems, Inc. and Crescendo Communications, Inc. coalesced around the Crescendo scheme. This prompted the committee to ratify what the industry has decided is the more robust technology, Husak explained.

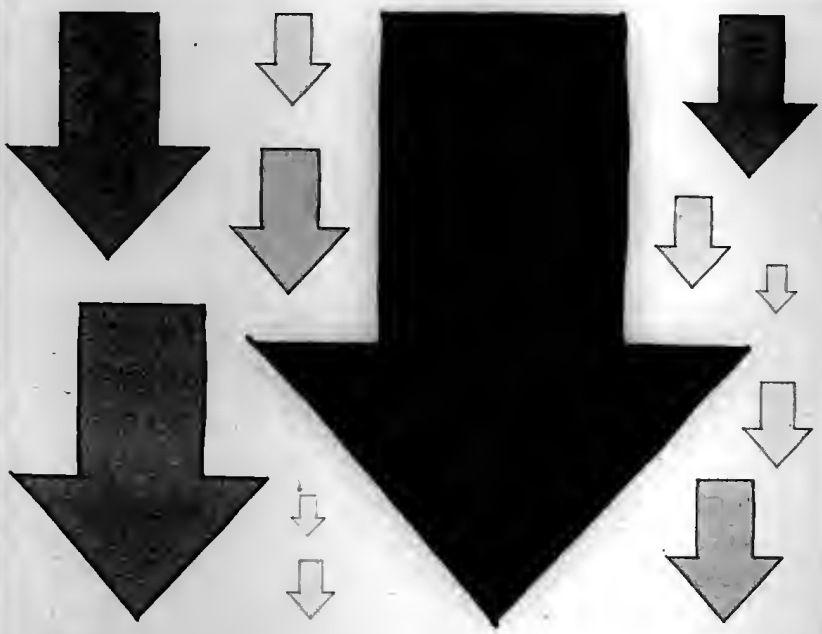
The industry compromise "could speed up the standards process by six months," which could be crucial to the success of FDDI and its copper counterparts, said Todd Dagres, director of data communications research at The Yankee Group, a Boston-based consultancy.

Lags in standards for inexpensive 100M bit/sec. networks could mean "users might turn to [emerging] switching hubs or extend their Ethernets" to tide them over, then move directly to gigabit-speed Asynchronous Transfer Mode (ATM) switching products now under development, according to Dagres.

In fact, Bear, Stearns & Co. in New York told *Computerworld* last week that it has already decided to leapfrog FDDI for ATM.

To curb user FDDI bypass moves, the standards players "must get their act together immediately" to proliferate FDDI technology during what Dagres predicted is its 1991-1993 window of opportunity.

Confusion over standards body work toward a shielded-only or a combination shielded/unshielded copper FDDI standard has impeded user moves to FDDI. Husak noted that there are still 16 technical issues to be resolved but said he would be "personally disappointed" if the committee did not have a document ready for final polishing in October.



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Cell-switching gets serious

The ATM movement was boosted last week with the meeting of ATM Forum, a group of vendors and user companies, including Bear, Stearns, that are working to proliferate standards for high-speed, cell-switched networks designed to carry emerging multimedia applications.

Cell-switching is desirable for applications such as voice and video that cannot tolerate the unpredictable delays of the variable-size packets carried by local-area and frame-relay networks.

The forum's tete-a-tete in Palo Alto, Calif., yielded a goal of nailing down key components of the User Network Interface (UNI) specification for signaling and traffic management by the group's December meeting, said David Husak, a member of both the ATM Forum and the FDDI standards committee.

UNI is the technology needed to link an ATM desktop user to a LAN or an ATM carrier network to a user's premises equipment — the key to ATM implementations. "The technology is here for building an ATM network," Husak said. "However, what the forum is working toward is interoperability in larger and larger ATM networks" where hubs, routers, LANs and wide-area networks all mesh together in an enterprise, he added.

No specific time frame has been set for that goal; however, industry analysts peg ATM in the local area to start kicking in by year's end and in the wide area by mid-1993.

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Users snub star-crossed pairing

CONTINUED FROM PAGE 1

tion world, might make the Apple/IBM PowerPC and operating environment seem like old hat by the time they are finally released in the mid-1990s.

Some users contend that the wait is far too long and that both companies may wind up delivering too little, too late. Many said they will make decisions based on what is realistically available.

"I'm not waiting for these products — it's too late already," said Charles Darnell, chief information officer at Lithonia Lighting in Atlanta. He compared the initiative with the Big Three automakers' tardy and ineffective response to Japan's wildly successful marketing of smaller, more fuel-efficient cars.

Clearly, IBM and Apple have more ambitious expectations. Last year, as much of the industry was heading off to Fourth of July barbecues, the longtime rivals set off some fireworks of their own.

They announced a partnership centered around the following initiatives: creation of a new line of RISC processor chips called the PowerPC; development of an open systems environment, PowerOpen, based on Industry-standard Unix; greater interoperability among Macintosh and IBM systems and networks; and two joint ventures — Taligent, Inc., which would develop a completely object-based operating system, and Kaleida, which would create a software platform for multimedia.

Except for the interoperability products — which were already in the works before the agreement was publicized and which also began shipping in late July 1991 — and the PowerPC chips (see story at right), the hazy arrival dates for much of these projects stretched into the mid-1990s.

Andrew Allison, editor of "RISC Management," a newsletter based in Carmel, Calif., rated the initiative's long-term chance of success as "slim to negligible. The whole thing hinges on this wonderful software environment that will take years to come to fruition. By that time, nobody is going to care."

Not everyone agreed. This venture is "absolutely critical for next-generation computing," said Tim Bajarin, president of Creative Strategies Research International, Inc. in Mountain View, Calif. "In the past, the computing model was individual desktops, and now it's shifting to a true client/server model. You can't take DOS to a RISC-based client/server setup."

Charles Darnell: *'It's too late already'*

Also at issue are the track record of both companies when it comes to getting PC operating systems out the door: They are not good ones. And some users with heavy investments in IBM's OS/2 and AIX and Apple's A/UX and System 7.0 operating systems are clearly worried about migration issues.

Taligent President Joe Guglielmi is trying to quiet those fears. "We're working closely with technical teams from both Apple and IBM to build call adapters so that Mac or IBM applications will run unmodified in the new environment," he said.

Putting technical concerns aside, there are also cultural issues to be reckoned with. Shortly after the alliance was formalized in October 1991, the clash of corporate cultures that everyone had feared seemed to surface. Taligent — the company on which Apple and IBM are banking most heavily — was slow to announce top management.

Furthermore, objections by Apple programmers to first choice David Liddle resulted in an uneasy compromise. Apple Senior Vice President Ed Birss was tapped for day-to-day operations, while Taligent's chief post was given to Guglielmi, IBM's top OS/2 marketeer.

This has fueled doubts about the ability of the companies, which are still competitors, to cooperate effectively. IBM President Jack Kuehler insisted it will happen. "We'll work together in the morning, and we'll beat each other's brains out in the afternoon," he said. "There's room for both."

Tough sell

Users aren't buying it. "The philosophies of the companies are so out of whack that I think it'll be some time before, or if, they get anything together," said George Tabback, director of corporate IS at Ingersoll-Rand Co. in Woodcliff Lake, N.J.

"Unfortunately, it's historical baggage we have to live with," Guglielmi said. He said he hopes to prove skeptics wrong by putting out a great product, starting with the PowerPC chip under development by Somerset, the Austin, Texas-based facility that houses IBM's, Motorola, Inc.'s and Apple's joint efforts.

According to Allison, the chip group moved its production schedule ahead by about a year in response to Intel's P5 push. As a result, the first offering will be "a re-spin of the processor used in RISC System/6000 Model 220. It's unlikely that its performance will be any different. The performance will be roughly half of the P5."

The long-ranging nature of the agreement opens the door for rivals such as Microsoft, Intel and Next, Inc. to lay claim to offering today the same sort of object-oriented open systems technology that Taligent is promising for the mid-1990s.

With users planning more for today than for several years down the road, the threat is real. "It's too far away," said Joe King, assistant vice president of client support services at Continental Insurance Co. in Neptune, N.J. "I have tactical problems to solve today."

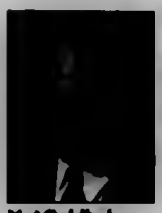
Strange bedfellows

The Apple/IBM alliance has been long on rhetoric but short on deliverables

July 3, 1991	Apple and IBM announce original letter of intent.
July 1991	SNAps – integrated protocols and services for Macintosh users communicating in an SNA environment.
Oct. 2, 1991	Apple and IBM formally announce the wide-ranging agreement.
	16/4M bit/sec. Token Ring adapter for Macintosh, which incorporates IBM's Token Ring technology.
Feb. 25, 1992	Joe Guglielmi named CEO of Taligent, Inc.
May 4, 1992	Somerset, the IBM/Apple/Motorola chip facility.
May 21, 1992	Additional Token Ring TCP/IP products for IBM/Macintosh connectivity.
June 23, 1992	A. Nathaniel Goldhaber named president and CEO of Kaleida.
Fourth quarter 1992	601, Somerset's first chip due. Machines to follow in 9 to 12 months.
1993-94	PowerOpen products, the duo's open systems environment, slated to hit the market.
Mid-1990s	Full object-oriented operating system from Taligent due. Kaleida's multimedia products also slated for this time frame.

CW Chart: Stephanie Faucher

Fledgling finally flies



Nat Goldhaber *to head Kaleida*

Kaleida, the venture charged with crafting new multimedia applications, has been the quiet sibling in the Apple/IBM partnership, all but lost in the talk and hoopla about new chips and an operating system.

That's understandable; products are not expected before next year. And it was only last week that a five-member board of directors was named, including A. Nathaniel "Nat" Goldhaber, who was appointed CEO. Additional executives will be appointed in the next 30 days. Goldhaber, a former venture capitalist focusing on high-technology firms, also founded Tops, Inc.

Apple Chairman John Sculley has hinted that Kaleida could lead both firms into the information services sector. Some analysts are predicting that its multimedia software could propel the duo out of the stagnating desktop market into areas such as consumer electronics. "They realize you can only go so far in extending the desktop PC metaphor," said Pieter Hartsook, editor of "The Hartsook Letter."

JAMES DALY

Products roll out slowly

The meat of the Apple/IBM alliance deliverables are not expected to begin arriving for nearly a year, but the following have already begun to trickle in:

- Just weeks after its July 1991 engagement, Apple unveiled SNAps, an integrated set of protocols and services used to tie Macintoshes into Systems Network Architecture.
- In October, Apple rolled out a 16/4M bit/sec. Token Ring adapter for Macintosh that incorporates IBM's Token Ring technology. It costs $999.
- Last month, Apple unveiled MacTCP Token Ring, an extension for its Transmission Control Protocol/Internet Protocol package. It will be bundled into Apple's MacTCP 1.1 products.
- Michael Fury, IBM's manager for the Enterprise Networking Group under the firms' joint development agreement, recently said to look for increased links between IBM's Application System/400 and the Macintosh late this year.

Other products further out on the horizon include:

- Working versions of the PowerPC chip may be available by year's end, followed by Macintoshes incorporating the RISC chip as early as next year.
- Developers are working to ease the transition to the new architecture, which could be commercially available by the middle of next year. AT&T subsidiary Echo Logic is developing tools for porting existing shrink-wrapped Macintosh applications over to the future PowerPC-based Macintoshes.

The object-code compiler will be able to translate binary applications in a matter of days, leaving Apple in a position to greatly accelerate development of its RISC-based Macintoshes, Echo Logic officials said. Flashport will be generally available by the middle of next year, coinciding with the expected appearance of PowerPC-based systems.

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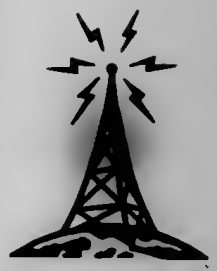

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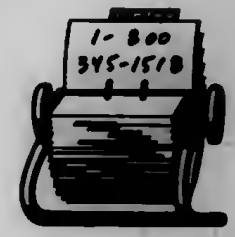

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ADVANCED TECHNOLOGY

Expert systems + chaos = better control systems

Firms such as GM save time with Parallel Inference Machine, a real-time computer for factory automation

BY GARY H. ANTHES
CW STAFF

General Motors Corp. has a new computer at its Fort Wayne, Ind., truck paint shop that has greatly simplified process control and reduced software development time by 40%.

But its name is not a household word just yet. The Parallel Inference Machine (PIM) from Flavors Technology, Inc. is a parallel-processing computer driven by two seemingly opposing guidelines: expert system rules and the principles of chaos. According to the GM engineer who programmed it, the computer behaves like a flock of birds.

PIM is a real-time computer for factory automation, military command and control, image processing and other applications that can be broken into numerous, loosely coupled processing streams.

At the GM facility, it controls ventilation, paint flow and spray-gun air pressure in a shop where more than 900 trucks are painted each day.

Multiple cells

Through time-sharing, the PIM stretches its 128 physical processors — Motorola, Inc. 68040s — into as many as 16,384 virtual processors, called "cells." The cells operate independently of one another but share a large common memory.

The computer is "systolic," pumping rhythmically like a heart. Sixty times per second, in perfect synchronization, the cells read from the global memory, perform calculations and write the results back to memory.

But the vendor and users said the real magic of PIM comes not from the hardware but from its Paracell programming language, which Flavors said requires about as much computer expertise to use as setting up a spreadsheet application.

> EACH BIRD applies its own simple rules: Fly 3 feet from your neighbor, fly at constant speed, slow down around corners and head for the roost.

Paracell was designed to be used by engineers, not programmers, said C. Robert DeSimone, marketing director at Amherst, N.H.-based Flavors.

"Typically, control engineers try to convey system needs to a contractor who hands them to a C programmer who then tries to write some code to run a factory," DeSimone said.

Instead, Paracell allows the engineer to program the PIM directly by writing English-language commands such as: "If pump pressure > 3,000 psi then reduce flow, set pump status to override and set control room alarm to on."

If Paracell does not know which pump is intended or what is meant by "override," it will prompt the engineer for more information, which it remembers. "It learns your vernacular," DeSimone said.

A rare bird

"Paracell is absolutely unique," said Alan Campagna, president of Theta Systems, Inc., an advanced systems consultancy that is based in Boston. "You don't have to think about [the parallel architecture]. You do one simple thing with one simple processor and you don't have to put the whole thing together." (See story below.)

Writing for an internal GM publication, Gregg Ekberg, a GM control engineer who wrote the Paracell commands for the application, said, "Our control software has become so complex that a significant portion of our personnel cannot maintain our processes, and worse, cannot implement improvements in the process because it is too difficult to determine how to incorporate the idea in the existing software."

Ekberg said the principles underlying PIM allowed a 40% reduction in software development time and a 90% reduction in the amount of code needed compared with traditional methods.

A flock of processors

Ekberg said systems that control multiple devices can be likened to birds flying in formation.

A traditional but complex approach to modeling a flock of birds would be to assume there is a bird leader that issues commands to the other birds while monitoring their flight. The bigger the flock, the smarter the lead bird must be and the better the inter-bird communication system.

But PIM uses a different model, the one employed by Mother Nature. There is no master bird; indeed, the birds (processors) do not communicate with one another at all. All the birds get the same information from the environment (the shared memory), and each bird just applies its own simple rules: Fly 3 feet from your neighbor, fly at constant speed, slow down around corners and head for the roost.

The latter approach is much simpler to implement, according to PIM users. "The result is an exponential reduction in software needed to control the system," Ekberg said.

PIM systems are priced from $250,000 to about $2.5 million, depending on the number of processors required.

The 'chicken brain' approach

According to Flavors Chief Executive Officer Richard Morley, PIM works best in situations involving "relatively dumb, loosely coupled aggregates of stuff." He called it the "chicken brain" approach.

For example, Morley said, "If we were Martians and we came to Boston, we would not understand how the [taxicab] system was programmed and how it runs so efficiently. We would look for heavily instrumented taxicabs with sensing devices; quartz clocks; large-scale, real-time distributed systems; and centralized mainframes running the entire process."

Instead, he pointed out, taxis are run by chicken brains that only need to know two simple rules: "If the taxi line you are in is too long, go to another line," and "When the dispatcher calls, bid on it."

That is the best way to approach a broad class of problems, from factory automation to air traffic control to financial modeling, Morley said. The problems are marked by chaos, in which the behavior of the system as a whole, but not the actions of individual elements, can be predicted.

In short, you can rely on having a taxi at 8 a.m. if you order it the night before, but you cannot know which cab you will get.

Morley said GM tried for years but failed to devise a master scheduler for assigning trucks to paint booths to minimize paint waste. Because the trucks came through with a random color requirement, the spray guns had to be cleaned after each truck was painted.

Now, the paint shop works a little like the Boston taxi system. A dispatcher broadcasts to all booths the color requirement for the next truck in the queue.

A booth has one basic rule: It bids for the truck if it is to be painted the same color as the truck it is currently painting so its spray gear will not have to be cleaned. If more than one booth bids, the truck goes to the nearest booth.

EDITORIAL

Federal assistance

The paradox of the high-tech industry's attitude toward a U.S. technology policy hit home last week when Informix Chairman Roger Sippl wagged a finger at Sen. Jeff Bingaman Jr. (D-N.M.) and warned government to "stay out of the way" of high-technology businesses.

Bingaman politely declined to point out that there has been no greater beneficiary of government grants and contracts in the computer industry than Unix, which has made Sippl, by his own admission, a wealthy man.

Such is the irony of high-tech leaders railing against government involvement in industrial policy. Last week's Great Debate on U.S. Technology Policy, an event co-sponsored by *Computerworld* and Computer Associates, pointed up more than ever the need for government to play a role of some kind in promoting American technological competitiveness.

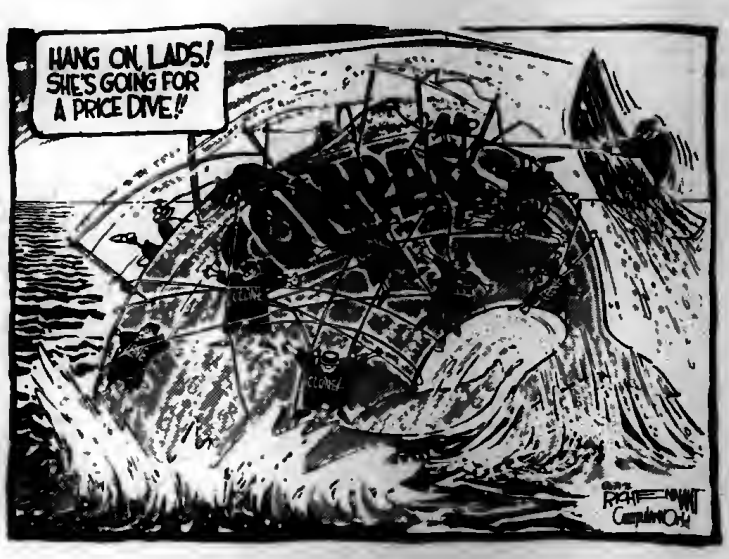
Technology entrepreneurs have already benefited immeasurably from government investments. Where would the semiconductor industry be without the Department of Defense and NASA? How far would the open systems movement have gone without government contracts and standards?

Where the government makes a mess of things is when it micromanages problems (as in the Commerce Department's flat-panel display duty fiasco last year) or sets standards that are out of touch with the market (like the DOD's sputtering Ada project). But Washington could take several short-term steps to improve the U.S. position without stomping on innovation:

- **Identify critical technologies and provide tax incentives for their commercial development by U.S.-based companies.** Lists of these technologies abound. What's needed is a government commitment to support them.
- **Refocus defense R&D spending on areas that have commercial potential.** DOD research is increasingly out of touch with the market. Bring it back to earth.
- **Provide incentives for science education** in the form of tuition tax credits, grants and scholarships. Polls show Americans are ready to pay for better education.
- **Commit to using advanced technologies.** The government spends more than $3.5 billion a year on computers. Why not write some of those procurement contracts to specify hot new technologies? If the benefits are so great, then technology and the taxpayers both win.

Yes, this is going to cost money, but so does any investment in the future. When it comes to America's technological competitiveness, government can't afford just to stay out of the way.

Paul Gillin, *Executive editor*



LETTERS TO THE EDITOR

'Hackers aren't the real enemy' viewpoint riles readers

It all comes down to issue of morality

Reading Chris Goggans' "Hackers aren't the real enemy" [CW, June 8], I'm depressed at the sight of a young person, obviously highly intelligent, so incapable of understanding the basics of morality.

- He justifies his penetration of computer systems by saying that he never damaged anything. Violating someone's computer is the same thing as violating his home. Once that moral precept is gone, anything is fair game.
- He justifies his actions based on the "learning" he gathered while violating others' systems, but to what productive end has he put that learning? In the time he spent peeking at the hard work of others, he probably could have done some really valuable work. I suspect that he and his ilk are not stoked on learning so much as on the high they get from getting away with something.
- He marvels at the vulnerability of computer systems. When he joins organized business, he will confront the fact that everyone is busy, and things sometimes drop through the cracks. When he has walked a mile in overloaded shoes, he may find that even he forgets to change a password every now and then.

Instructing systems administrators on their responsibilities is like a thief calling his victims to scold them on leaving the windows open.

Chris, you're bright, energetic and potentially productive, but until you learn what's right and what's not, you will be just a dangerous kid.

Barry Schaeffer
Synergy Group, Inc.
Falls Church, Va.

Accidents can happen — too easily

I would like to reply to the statements in Chris Goggans' Viewpoint article.

"But I'm not stealing anything." Yes, you are. Every processor cycle that you use steals from the owner of the computer. Someone has to pay for it, either in direct charges for the equipment or in some other way.

"But we were careful not to change anything that might be harmful." Of course you were careful. But you admit that many of your fellow hackers run unknown utilities to see what they do. Running a program without knowing anything about it is like checking the amount of gasoline in a tank by lighting a match to look inside.

Don't tell me you can tell that the utility program will not do any damage. You don't know the purpose, the operating parameters or the intended effect of a program. Do you just say "oops" if you destroy files in the process?

There are two ways to deal with hacking: stiff penalties, including banishment from the industry; or a program operated by the major industry players to put the "explorer" to work building more secure systems. I would prefer to support a young computer enthusiast with talent and brains to work for me rather than against me.

Walter Daniels
Indianapolis

It's trespassing

The column by Chris Goggans brings up many valuable points regarding computer security and the need for security procedures in an increasingly decentralized, interconnected and vulnerable computer infrastructure.

However, lack of countermeasures to prevent trespassing, vandalism and theft of computer resources is not the problem; the problem is people who don't see the difference between voyeurism and crime. Strolling along a nude beach provides opportunities for voyeurism; entering a house uninvited and watching the occupants shower is trespassing.

When evidence of a hacker is found on a computer system, the system must be diagnosed for possible viruses, deleted or corrupted files and other damage. This considerable time and expense cannot be avoided by hoping that the hacker was of the benevolent variety that we are to believe Goggans represents.

Hackers do not deserve access to valuable, sensitive information until they can demonstrate their desire to be law-abiding, responsible citizens.

Michael L. Wyland
Sioux Falls, S.D.

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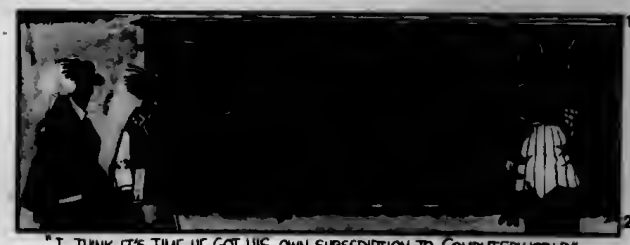

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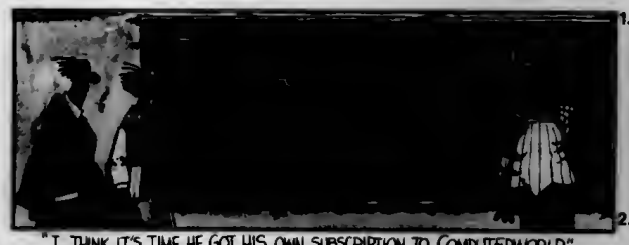

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Don't waste blue-collar power

ANTHONY P. CARNEVALE

We are in a new economic ballgame with new rules and new competitive standards. And if we want to to be a winning player, we must meet the formidable challenge of simultaneously reforming both our schools and our workplaces.

American education has not failed by historical standards. Schools have held the line on test scores and cut the number of dropouts in half during the past decade, while providing greater access to education from preschool to graduate school. But our schools are not doing as well as those of our principal competitors because the global standards of the new economy have set the bar higher for both schools and employers.

Power to the people

The computer is the critical technology in the emerging economic order, and its greatest power comes from the fact that it grants unprecedented autonomy to employees who use the technology to make products, deliver services and interact with customers.

That power can only be realized, however, if employees up and down the line have been given sufficient knowledge and encouragement to make the fullest use of computer-based technologies.

Real school reform will require deep changes in the way knowledge is organized and taught. Since time immemorial, schools have served as human and organizational computers for storing and passing knowledge down through the generations. As a result, students taught in traditional schools know a great deal more than they understand.

In the schools of the future, students will have to learn how to apply as well as store interdisciplinary knowledge, to understand and use what they know.

The most radical challenge for schools and employers is to empower and enable that other half of the graduating class — the half that doesn't go to college — to fully use computer-based technologies on the job.

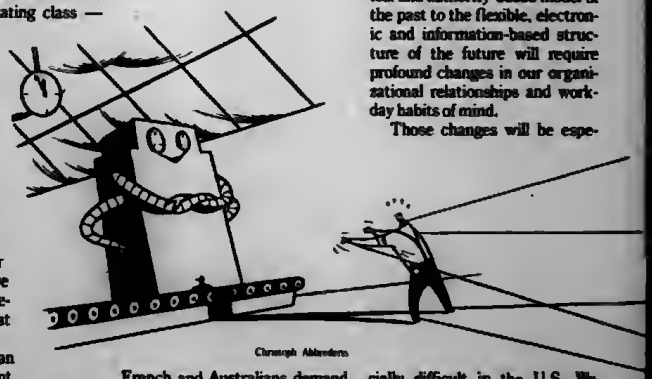
Employers can best help the schools by putting their own house in order. We can't wait for the schools to save us. Graduates replace employees at just 3% a year.

Further, we can educate all we want, but if employers aren't prepared to use more highly educated employees, we will end up with too many smart workers and too many dumb jobs.

2% down, 98% to go

Most employers have a long way to go. Currently, only 2% of employees are empowered to use the technologies available to them. Nor have U.S. line employees received as much training to meet competitive standards as their foreign competitors.

The average Japanese employee works with three times as much technology as the average American worker and gets at least three times as much training on the job. The Germans provide several years of formal training to more than 80% of their noncollege youth. The French and Australians demand that their employers spend at least 1.5% of payroll on training or pay the difference into a national training fund.



Christoph Ablanedoro

Although U.S. employers spend a great deal of money on training — $30 billion annually at last count — only one in 13 U.S. workers has ever been trained by his employer, and most of the training goes to those at the top of the organizational pyramid.

Work and school reform will cost money, but not nearly as much as most suppose. About 40% of competitive improvements come from the technologies and educated workers we buy. The other 60% comes from the way we learn to use technology and from people on the job.

Two-part challenge

Buying the new technologies and educated workers is the easy part. But it is only 40% of the challenge. The other 60% is the race up the learning curve. Transitioning from the rigid, mechanical and authority-based model of the past to the flexible, electronic and information-based structure of the future will require profound changes in our organizational relationships and workday habits of mind.

Those changes will be especially difficult in the U.S. We have been the world leader in top-down mass production systems since the 19th century. Old and once-successful behaviors die hard.

Carnevale is president of the Institute for Workplace Learning of the American Society for Training and Development in Alexandria, Va.

That'll be a pizza, a Coke, some cookies and a PC to go

MICHAEL COHN

Don't throw in the towel on PC sales. Granted, PC vendors are taking it on the chin. Revenues are reeling. Profits are pitiful. And the few people who don't already own a PC only want to purchase one if it's dirt cheap.

None of this means you can't still make a buck selling PCs, though. You just need a few low-cost alternatives — some cheap new ways to get your product to market.

I have a few ideas for you to try. Never mind if they sound a little quirky; they may just be crazy enough to work. Besides, what have you got to lose, especially if you haven't seen black ink since the third quarter of 1989?

- **The PC vending machine.** I'm shocked it hasn't come to this; I expect to see one any day now. Put your money in, press a button or two and out slides a system, like a can of Coke.

Of course, you might risk ticking off a customer with a $1,240 system unit when the exact change light is on. And you'd better warn people to keep those fingers away from the chute, especially when they're selecting that 40-pound color monitor.

- **PC drive-thru.** They probably have this somewhere already. But if not, someone should start one. Think of it as fast food for the MHz crowd. Just glide up to the drive-thru window and bark out your configuration. Quick and convenient, as long as most file servers fit through the driver's side window of a Ford Fiesta.

Think customers will be reluctant to place a complex $12,000 order with a talking clown? Consider what they are used to.

- **Peripheral promotions.** There's no margin on hard drives. There's no profit in cards and adapters. You've got to get peripherals into the market quickly and cheaply. How about a free 80M-byte hard drive with every fill-up (8 gallon minimum)? Or how about one free network adapter inside each specially marked box of Captain Crunch?

I think kids would prefer another 16M bytes of memory to a glow-in-the-dark plastic Crunchberry Beast. I know I would.

- **The Girl Scouts.** I can't say no to a Girl Scout. Maybe it's the uniform or something. But if I try to squeeze one more box of sandwich cookies into the freezer, my wife will throw me out of the house. I'm telling you, this is the largest, most effective sales organization in history. Imagine if they sold PCs. . . . I'd wind up with a 30-node network in my living room.
- **Gold-plated printers.** Gold pens have hogged the gift and graduation markets for too long. Impact printers are pretty cheap. Just plate them in precious metals, maybe engrave them with a "Happy Bar Mitzvah, Stanley" and open a whole new market.
- **Delivery, Domino's style.** Someone is going to make a killing in home delivery. With the rapid evolution of PC technology, speed is everything. Think of it: Get your PC in 30 minutes or the next one's free. Would make a great gimmick — for at least as long as obsolescence takes a minimum of an hour.
- **Total solution selling.** You've heard something like this concept before. The difference is that most of the time when people talk about one-stop shopping and total system packages, they leave out one very important thing. I'm talking about a deal that comes with *everything* a user needs — a processor, color monitor, hard drive, printer, cables, applications . . . and a guy named Melvin who runs the whole thing.

Cohn works for a very large computer company in Atlanta.

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The new HP PaintJet XL300 lets you make a splash without getting soaked.

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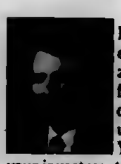
HEWLETT PACKARD

WINDOWS VIEW

Jesse Berst

Good GUI design



It's awfully easy to throw away the benefits of the Windows graphical user interface. You can waste your investment in computers, software and state-of-the-art development tools if your programmers create custom applications that make users less, instead of more, productive. Fortunately, there's an easy solution — teach your programmers the principles of good GUI design.

For instance, when Seattle's Metro utility made the move to Windows this year, it sent 30 of its programmers through a GUI design workshop led by Christine Comaford at Corporate Computing in Sausalito, Calif. The programmers had been assigned to construct different pieces of a Windows-based system. The company knew the pieces wouldn't fit together unless they had a standard design.

Is this kind of training really necessary? I think so.

As one of the judges in this spring's Windows World Open (the *Computerworld* Custom Applications Contest), I reviewed dozens and dozens of in-house programs from corporate developers. I saw far too many cases where developers had admirably solved the technical issues but miserably failed with the interface.

What's this creation?

In some ways, the situation is analogous to the appearance of desktop publishing in the mid-1980s. People got their hands on desktop publishing tools and created documents that were uglier than anything they had done manually.

Similarly, many programmers don't know how to apply the power of the GUI, especially if they have backgrounds in the character-based mainframe world. They are able to figure out the new tools — how to put a button on the screen, for instance. But they aren't always sure where to put it, what it should look like or when to use a different kind of control instead.

Where do programmers go wrong most often? Incorporate

Continued on page 55

Intel breaks into low-volt chip market

ANALYSIS

BY MICHAEL FITZGERALD
CW STAFF

Low-voltage processors have come to the fore recently, as Intel Corp. added its name to the ranks of chip vendors with low-voltage devices. Analysts said this will spur development of portable systems with longer life, a process begun with Advanced Micro Devices, Inc.'s (AMD) low-voltage SXL processor.

"Where AMD could provide the technology, Intel provides the marketing muscle to get subsystems vendors in line," said Leslie Fiering, an analyst at the Gartner Group, Inc. in Stamford, Conn.

Intel released several versions of its 80386SL power management chip designed to run at 3.3V instead of the normal 5V. Both a 20-MHz cached chip and 16-MHz and 20-MHz cacheless versions were introduced, bringing Intel up to speed with AMD, Chips and Technologies, Inc. and Cyrix Corp., which already make 3.3V chips. Intel's statistics show a 3.3V chip, in ideal conditions, will save 43.6% over 5V operation. This means notebooks will run longer.

Intel said low-volt chips will also lead to a surge in subnotebooks and pen-based systems because the current 386 chip eats too much power. Users clamor for longer battery life.

"For our agents, it'd be much more convenient for them not to have to carry around an adapter," said Richard E. Nelson Jr., vice president of agency systems at New York Life Insurance Co.

No near-term impact

Yet despite interest in the processors and their potential for lengthening battery life, systems that take full advantage of low-voltage processors will have little impact before the end of the year. On their own, 3.3V processors save little in the way of power; for real gains, systems must have 3.3V versions of other major components, such as the graphics controller, the hard drive and the screen.

Intel said the chips it announced will fit largely into the fledgling pen-based and subnotebook markets, not the notebook market. Company officials said Intel's 3.3V 486SL, due out in the fall, will drive the notebook market.

"I don't see any 3V 386 notebook development going on," said Dave Ryan, Intel's marketing manager at the Mobile Products Division.

Analysts predicted this will change.

"Users will want [the technology] right away, so while the things [vendors] are designing are for the high-end products, they'll go back and put it into their big sellers," said Dan Ness Jr., an analyst at Computer Intelligence in La Jolla, Calif.

Power hungry

Still, users will not have to wait for full 3.3V systems to gain power. Several vendors use AMD's chip, including AST Research, Inc., and Cyrix has signed partners as well. These extend battery life, despite a lack of other 3.3V components.

"You don't need a system that is fully designed to run at 3.3V," Ryan agreed. "Most of the gain in battery life is seen in a hybrid approach."

This will not be as easily done as said, however. The low-volt 386SL requires a system redesign, and different vendors will likely approach it with different degrees of effectiveness. Another factor is the lower power generated by the 3.3V chip: A poor systems design could possibly cause a dimmer display, for instance.

Battery life "will depend on the system design" to some degree, said Mark J. Foster, vice president of portable computers engineering at Zenith Data Systems. He added that a relatively simple redesign could achieve up to 20% better battery life. He said some of the basic parts had to be made somewhat smaller to compensate for the chip's lower power generation but that this was not a particularly challenging feat.

Desktop division: Study finds gender roles differ

BY CAROL HILDEBRAND
CW STAFF

A survey that looked at the warm, fuzzy side of computers revealed some gender differences in how people interact with their desktop box.

While men are more apt to become the power users, and women learn enough to get their jobs done, women are the ones information systems staff members may want to lend an ear to: They represent the majority of users.

Conducted by ADF Research in San Rafael, Calif., the survey, "PCs and People," was commissioned by Logitech, Inc., which said that exploring users' attitudes toward personal computers helps Logitech design its products to make computers more human.

Responses came from a random sample of 301 computer users. The survey targeted a business computer user with a median of about six years' computer experience. The mix comprised about 60% management and 40% clerical workers, said Logitech spokesman Serge Timacheff. He emphasized that they were looking for end users, not IS types.

"There is a male-oriented stereotype in the industry because it's men typically buying computers," he said. "But of the people actually using computers, there is a gender difference of two-thirds women and one-third men."

The gender gap

Some key findings include the following:

- PC as an electronic equalizer: An approximately equal amount of men vs. women are performing word processing (67% men, 73% women), data management and scheduling, suggesting that administrative tasks are perhaps moving back toward being distributed to the individual.
- More men are apt to get under the hood and tinker, while women are more concerned with getting the task at hand done.
- Women are more concerned about learning to use a computer (48% vs. 26%) but are more likely to think computers are fun to use after they do (84% vs. 74%).
- Men are more likely to want computers that interact with them — for example, through speech recognition (54% vs. 29%). However, 52% of women want handwriting recognition.
- Computer use is on the rise: 96% said their computer will become more vital in the future, and 92% would not be happy if their box were to disappear.

Timacheff said the survey could also prove useful to IS managers looking to plumb the ever-elusive thought processes of their client, the end user.

"MIS has to get away from the egocentric view that computers are what people are working for. A stockbroker doesn't care about the inner workings of a PC, she cares about the stock," Timacheff said.

Moving human characteristics onto a PC might be what people want, but it would also help to kick up the touchy-feely quotient for IS staff, Timacheff advised.

Renaming can fix files

Part of a series of Windows 3.1 user tips provided by Microsoft Corp. and based on questions commonly asked of Microsoft customer support personnel.

WINDOWS POINTERS

Q During installation, when Windows Setup attempts to switch from the MS-DOS character portion of Setup to the graphical-mode Windows portion of the installation, the hourglass cursor disappears and Setup hangs, or Windows exits to MS-DOS. Why does this happen?

A This may happen if there is a corrupted or earlier version of SETUP.INF or SETUP.EXE located in the WINDOWS or WINDOWS/SYSTEM directory. Search these directories and rename either of these files if found or if the files are dated before 3/10/92. For example, rename SETUP.INF to SETUP.OLD. Then run the Windows Setup program from the Windows disks again.

Q Can I set up a permanent or temporary swap file on a "stacked" disk drive?

A Windows 3.1 does not support the use of a permanent or temporary swap file on a "stacked" drive. A stacked drive is one on which you are running the Stac Electronics' Stacker utility.

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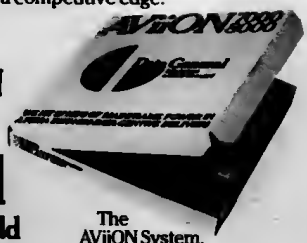

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IDC

INTERNATIONAL DATA CORPORATION

White Paper

ELECTRONIC MAIL: THE NEW CORPORATE BACKBONE

"Electronic mail has delivered itself to the forefront of the corporate psyche. In many instances, it has become the preferred way of communicating within an enterprise. In fact, electronic mail will begin to make us redefine exactly what "The Enterprise" encompasses. It will play an integral role as U.S. companies increasingly change their automation focus from transactions to relationships among people."

This White Paper was written independently of the *Computerworld* editorial department by Ann Palermo, Director of Workgroup and Messaging Research, and Judy Rosall, Program Manager, Electronic Imaging, at International Data Corporation.
For more information on the content of this White Paper, or for information on International Data Corporation, please call 508-872-8200. For more information on the White Paper Program, please call 508-879-0700.

Introduction

In the world of corporate communications, electronic mail is doing for data what the telephone did for the spoken word: providing a ubiquitous communication media that allows anybody on the network to communicate with anybody else on that same network. Without the threat of busy signals.

But far more than just providing personal communication, electronic mail is turning into the backbone for a host of enhanced communications services that will greatly alter the way corporations and other organizations conduct their internal and external business. For instance, voicemail and facsimile transmissions are piggybacking on electronic mail networks.

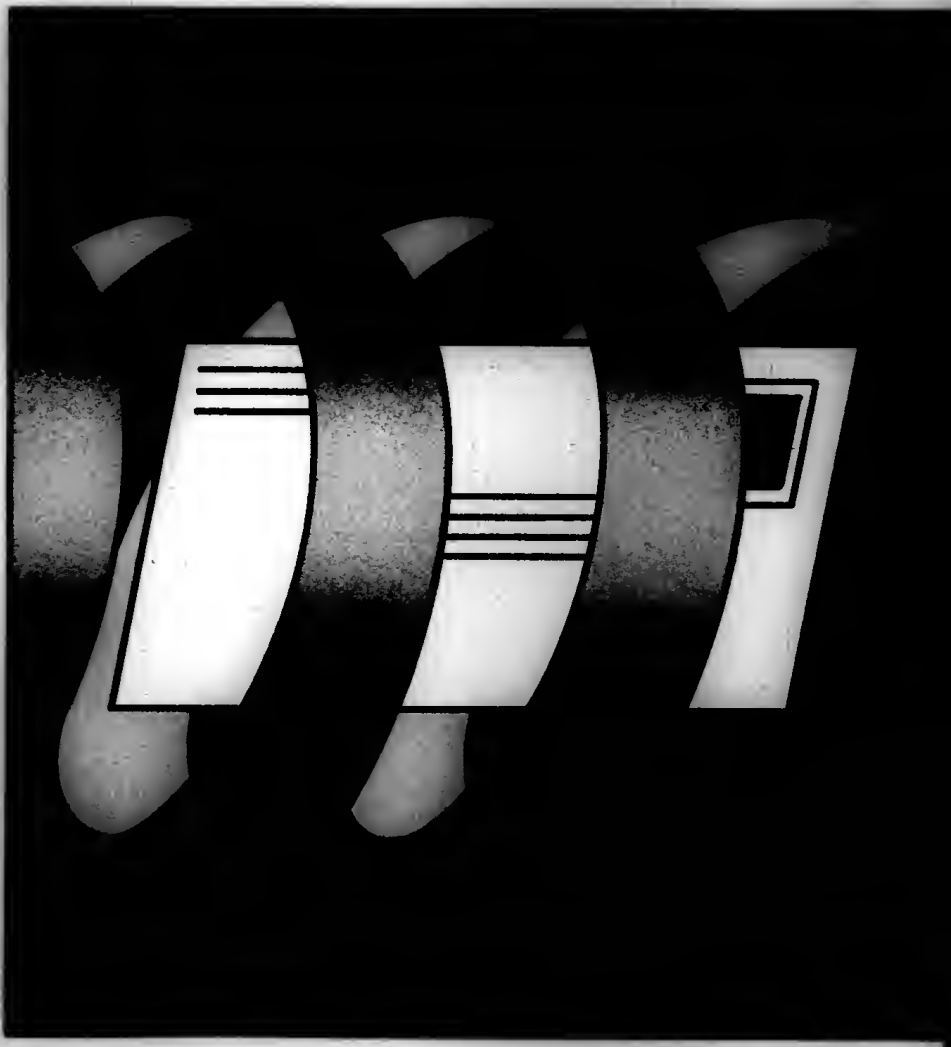
Further, innovative group applications such as workflow and routing, scheduling and electronic conferencing are using selected electronic mail system components such as directory services and transport capabilities. While this White Paper will discuss many of these topics, it will focus on electronic mail-enabling, applications-integration issues.

In addition to enabling enhanced services, electronic mail is supporting such business-altering trends as total quality management, reengineering and top line management. The impact of all these services and capabilities is nothing less than staggering.

The future of electronic mail will be greatly impacted by its adherence to the X.400 electronic mail transport and X.500 directory standards. As with most standards, these two are going through an evolution of acceptance within the vendor and user community. Eventually, they may play a key role in making electronic mail a truly pervasive user tool instead of a simple vendor-dependent add-on.

Despite its alluring promise, however, electronic mail still has some barriers to overcome. Unfriendly interfaces continue to put off potential users, and it is only slowly being integrated with applications in the all important local area network environment.

As these technology barriers inevitably fall, electronic mail will prove its value by automating relationships and the roles of people, rather than transactions.



ELECTRONIC MAIL: THE NEW CORPORATE BACKBONE

ELECTRONIC MAIL HAS DELIVERED ITSELF TO THE FOREFRONT OF THE CORPORATE PSYCHE. IN MANY INSTANCES, IT HAS BECOME THE PREFERRED WAY OF COMMUNICATING WITHIN AN ENTERPRISE. IN FACT, ELECTRONIC MAIL WILL BEGIN TO MAKE US REDEFINE EXACTLY WHAT "THE ENTERPRISE" ENCOMPASSES. ■ THE GROWING POPULARITY OF ELECTRONIC MAIL IS EVIDENCED BY SOME COMPELLING FACTS. THE NUMBER OF LOCAL-AREA-NETWORK-BASED ELECTRONIC MAILBOXES DOUBLED FROM THE END OF 1989 TO THE END OF 1990, DOUBLED AGAIN FROM THE END OF 1990 TO THE END OF 1991, AND WILL LIKELY DOUBLE AGAIN THIS YEAR. MOREOVER, FROM 1990 TO 1995, THE NUMBER OF LAN-BASED ELECTRONIC MAILBOXES WILL INCREASE BY AN ORDER OF MAGNITUDE. BUT THESE FACTS TELL ONLY PART OF THE STORY. ■ ELECTRONIC MAIL WILL PLAY AN INTEGRAL ROLE AS U.S. COMPANIES INCREASINGLY CHANGE THEIR AUTOMATION FOCUS FROM TRANSACTIONS TO RELATIONSHIPS

among people. In so doing, it will extend beyond the traditional concept of interpersonal messaging to include the automation of manual processes and the activation of desktop applications.

But before delving into the future of electronic mail, it is worth taking a look at how it got to where it is today.

THE GROWTH OF ELECTRONIC MAIL

The roots of electronic mail in a commercial office environment can be traced back to the 1980s, when it was a proprietary part of such large vendors' automation packages as Digital's All-in-1, IBM's PROFS and Personal Services, and Wang Office.

Changes began to take place in the late 1980s, with the advent of low cost electronic mail delivered on PCs attached by local area networks. But as the much-ballyhooed "Year of the LAN" was announced again and again from 1988 through 1992, the results were unimpressive: Despite the many grandiose predictions, LANs were primarily used to share expensive peripherals, such as laser printers.

Because prices of peripherals are rapidly declining, the economics of LANs are also changing. Now that LANs are largely established and accepted, users are adding networked applications. The first significant networked application is electronic mail.

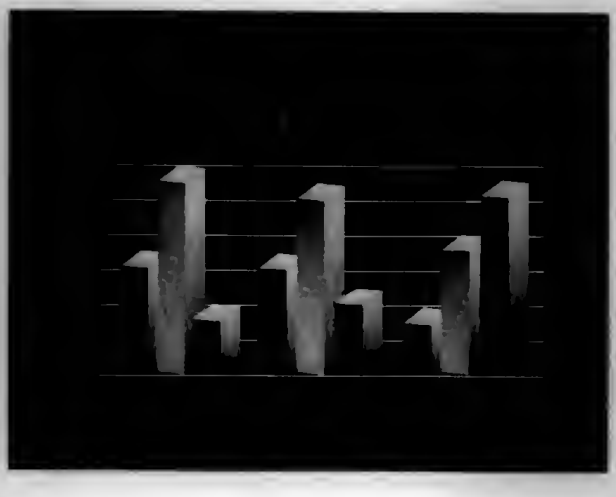
The rapidly burgeoning number of LAN-based electronic mailboxes is attributable not only to the upward growth in LAN-connected PCs — today over 40% of U.S. business's PCs are connected via local area networks, and that number is expected to grow rapidly over the next five years — but also to the recent trend towards downsizing applications. As a result of the booming LAN-based electronic mail popularity, minicomputer- and mainframe-based electronic mail systems are losing market share.

However, electronic mail is not without its problems. Many of its user interfaces are less than user friendly. Most electronic mail is text oriented and provides no inherent structure within the message. Electronic mail allows users to broadcast messages, but for instance, in workflow environments, there is no provision for automated routing of messages to a series of people. The integration of electronic mail with applications within the LAN environment has lagged. Finally, management issues including directory synchronization, multi-vendor integration and systems administration are growing as the number of electronic mailboxes grows. Both vendors and users alike are currently grappling with these issues.

Despite these shortcomings, there are some strong reasons why IDC believes electronic mail is not only here to stay, but will significantly change our corporate culture, becoming, in effect, the corporate information backbone. First and foremost is the growth rate of mailboxes. Total mailboxes numbered six million in 1987, but reached nearly 17 million in 1990. Second, electronic mail leverages existing investments in network technology, and unlike database management technology, it is inherently scalable.

Finally, there is an established set of international standards related to electronic mail transport (X.400) and directory services (X.500). These standards have increasing levels of support within vendor offerings, and clearly they have support from the user community (see sidebar), which will in turn drive the vendors to greater support. Ultimately, scalability, coupled with the X.400 and X.500 initiatives for transport and directory standards, will spell the difference in making electronic mail a truly pervasive business tool, as opposed to a simple vendor-dependent add-on.

This promising future of electronic mail is also predicated on some significant organizational trends that are currently occurring in the U.S., as well as ancillary developments in workflow software and intelligent mail filtering technology.



ARCHITECTURAL CHANGES

Typically the large-vendor, central, office-automation-based electronic mail systems of the 1980s were installed at sites where the predominant desktop device was a terminal. These systems of yesteryear are now ripe for conversion to LAN-based electronic mail packages, particularly in the many organizations that have replaced terminals with intelligent desktop devices.

For the companies placing processing power at the desktop, the appeal of host-based personal productivity applications is extremely limited. Over the past seven years, the trend towards replacing host-based applications with less expensive desktop applications, such as 1-2-3 and WordPerfect, has crystallized.

Further, as LAN-based electronic mail became available, its adoption within companies mirrored the personal productivity software trend. That is, just as host-

based word processing and spreadsheets were augmented and replaced by PC-based software, so did LAN-based electronic mail affect its host-based counterpart.

One compelling reason for this is the lower initial license cost of the software: PC LAN-based electronic mail user costs are approximately $50 per mailbox, which is a fraction of the cost of the host-based equivalent. Finally, as PC LANs grew up in organizations, out of workgroup, departmental, or other grass roots efforts, there was a void in terms of interpersonal communication that was readily filled by LAN-based electronic mail.

Until early 1991 even the major PC software vendors had only a limited investment in electronic mail. In recognition of the growing demand, however, they are now delivering LAN-based electronic mail for a wide audience while offering lower prices and more appealing user interfaces.

As the new electronic mail systems evolve, like the previous generation of office automation systems, they too will include other applications. Rather than providing personal productivity applications, which are now commodities on PCs, electronic mail will evolve to support networked and group applications, such as workflow and routing, scheduling and electronic conferencing.

Even though these applications are a step beyond electronic mail because they are focused on collaborative activities, in many cases electronic mail will still provide the infrastructure required to run them. For example, many group computing applications will use selected electronic mail system services such as address book and transport.

Electronic mail architecture is shifting toward a modular, client-server foundation as PC-LANs supplant host-based systems. On the client front, the key function is performed by the user interface. Because of the variety of desktop devices in the office, companies frequently have a need to support varied devices in a single electronic mail network. Also, users want to customize their electronic mail environment to suit their individual needs. This includes having easy-to-use programming and electronic mail filtering systems that discriminate among calls and treat them in a set way.

On the server side, three electronic mail components are becoming increasingly modularized: the directory, the message store and the transport. The directory, or address book, minimally holds information on users' addresses. This is expanding, however, to include information further profiling the user's work preferences, such as his or her preferred word processor or spreadsheet. As a result, when application-based information is mailed, it can be translated into the most useable format for the recipient. The message store is the repository for the actual message files, and the transport routes the transmission.

The server will increasingly provide more sophisticated services as electronic mail becomes more widely implemented. For example, network-based electronic mail rules servers will function as filtering systems for all the electronic mail in the system. Much to the relief of users, there may be a time in the not too distant future when such a system will be used to weed out the electronic junk mail.

ORGANIZATIONAL TRENDS

There are a number of factors contributing to the pervasive need for more and better kinds of interpersonal electronic communications within and among businesses and organizations. This is happening as the enterprise goes through fundamental changes.

Total Quality Management

The concepts of total quality management and quality circles are rapidly moving from the largest, most successful corporations to smaller organizations. American companies of all sizes are such enthusiastic fans of quality management that prestigious awards, such as the Baldridge, are now based on quality. The fact that few companies spend any time defining quality does not prevent them from dedicating themselves wholeheartedly to quality circles.

Reengineering

Reengineering is a set of methodologies aimed at streamlining the business process. Its goals are to create significant improvements in throughput as well as provide improved tools for management feedback. The term is somewhat ironic as most business processes were never engineered in the first place. Reengineering works best when it is implemented in an environment involving all levels of employees. Perhaps the biggest advantage of reengineering is that its promise makes it easier for businesses to admit that they need to change. Again, electronic mail can be a key enabler by opening up and maintaining communication during this critical process. Like reengineering itself, electronic mail breaks down the barriers between departments.

Top Line Management

The bottom line management style of the 1980s focused on corporate profitability. This approach focused more on earnings per share than customer satisfaction. The 1990s will show a dramatic shift towards top line management, wherein companies take a longer term approach

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cc:Mail offers an impressive set of administration tools. Such as Automatic Directory Exchange, a product which automatically collects any changes

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nic mail package
proval from everyone.

made to the directory and updates the entire network. It's also the first package of its kind that's built on a new, fully scalable messaging architecture. Which means it can accommodate 5 to 500,000 users. And grow along with your business. One more thing: cc:Mail has won every major industry award, including the Windows Magazine 1992 WinAward and ComputerWorld's 1992 LAN Brand Preference award.

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Users embracing E-mail, standalone fax, voicemail

The annual IDC multi-media and integrated messaging end-user survey of 100 Fortune 500 U.S. corporations reveals significant shifts over the past year in messaging priorities along with substantial growth in corporate usage and intent to purchase electronic messaging technologies.

According to the survey, electronic mail, standalone facsimile and voicemail are becoming nearly as ubiquitous as the telephone. Furthermore, activities such as the deployment of LAN-based electronic mail and increased emphasis on the interconnection and integration of electronic mail systems, PC fax boards, X.400/X.500-based products, messaging Application Program Interfaces (APIs), on-line information services and EDI technologies are all given a high priority by the survey respondents.

These shifting priorities reveal that electronic mail in the corporate environment is moving beyond its traditional role as an interpersonal communications vehicle. It is becoming a universal platform for a wide variety of multi-media and integrated messaging applications. Interim corporate electronic mail strategies are giving way to strategies designed for the longer term.

"The purpose of electronic mail is becoming clearer as it evolves into a foundation for building enterprise-wide, integrated multi-mode messaging highways."

Acquiring a Critical Mass of Users

The purpose of electronic mail is becoming clearer as it evolves into a foundation for building enterprise-wide, integrated multi-mode messaging highways. The prerequisite for implementing these highways is a critical mass of interconnected users and the installation of a ubiquitous, integrated messaging transport platform. This explains the strong emphasis on interconnection, integration and open systems deployment by the end users in this survey.

Look for the coming year to bring increased end-user emphasis on purchasing and deployment of Open Systems Interconnect (OSI) compliant X.400 and X.500 products and services. There will also be more emphasis on the integration of fax and electronic mail and voicemail and electronic mail. Other trends to look for include increased support and development of messaging APIs; continued growth of LAN-based electronic mail system implementations; and the beginnings of workgroup and document management system deployment.

Respondents are surprisingly consistent and clear when identifying emerging trends in electronic messaging. The need for integration of various electronic messaging technologies appears repeatedly as a key theme and end-user requirement, particularly the intra- and inter-enterprise integration of electronic mail systems. And they reveal preferences for particular integration scenarios and standards (internal electronic mail standardization and industry electronic messaging standards).

This year's report shows rapid growth in the penetration rates of electronic messaging technologies. The following items reflect the current percentage of use and the comparable figure from one year ago:

- Electronic mail penetration (98%, up from 67% last year)
- Voicemail penetration (84%, up from 48% last year)
- LAN-based electronic messaging penetration (65%, up from 50% last year)
- EDI penetration, (42%, up from 28% last year)
- Fax boards, (49%, up from 15% last year)
- LAN or host fax servers/gateways (52%, up from 17% last year).

Specific integrated hardware scenarios indicate increased user sophistication resulting from early adoption. More than half of the survey respondents give high importance to integration of the following messaging media:

- Access a "universal mailbox" from anywhere (65%)
- Integrate graphics/images into electronic mail (58%)
- Be notified in electronic mail of fax receipt (58%)
- Retrieve messages in any format from electronic mail (62%)
- Be notified in electronic mail of voicemail receipt (54%)
- Integrate fax graphics into electronic mail (54%).

Market Sophistication Drives Use

It is also important to compare this year's responses to last year's. Sixty-five percent of this year's respondents indicate the importance of the universal mailbox, up from 40% last year. This is evidence of major advances in market sophistication. Fifty-six percent of this year's respondents indicate the importance of retrieving messages in any form from electronic mail, up from 35% last year. This reflects the gains in penetration electronic mail has realized.

Among end users, OSI-compliant products are mentioned as the most popular means of providing integration. X.400- and X.500-compliant products are strongly favored by system implementors and those who influence purchasing decisions. Approximately 42% of the respondents indicate planned deployment of X.400 interconnections during the next two years. The importance of X.400 compliance in electronic mail systems is cited by 53% of respondents, up from 26% last year.

Interestingly, 38% of the respondents indicate they will be implementing X.500 applications within the next two years. IDC believes this response reflects a willingness on the part of corporations to begin deployment of strategic plans that will include internal and external international OSI intercon-

nection capabilities. This response also portends gradual migration from proprietary, or tactical, electronic mail gateways to open systems protocols.

Purchasing intentions for all forms of electronic messaging products and services continue to be strong. For internal use, facsimile-related technologies are most often mentioned, with bigger ticket purchases of voicemail and EDI also showing a significant response rate.

For external use, 31% of the respondents say they are planning to purchase electronic mail switching and gateway services within the next year. An additional 14% are planning to purchase these services (e.g., X.400, Message Handling Services, SoftSwitch, or LAN gateways) within the next two years. This response supports the premise that end users are continuing to emphasize the interconnection of electronic messaging systems (via proprietary and open systems protocols) to their electronic mail backbone networks.

Burgeoning Fax Derivations

Although fax technology is reported to be ubiquitous, significant growth continues in related technologies such as multi-function fax machines, LAN- or host-based fax servers/gateways, fax boards and fax/modem boards. Standalone fax machine purchases within the next year are predicted by 48% of the respondents and fax server purchases are planned by 35%.

Fax and fax broadcast services are also popular with the respondents, as 43% say they subscribe to various types of enhanced fax services. This market is poised for continued growth in areas such as fax broadcast, fax mailboxes and fax-on-demand. These services are helping companies realize improvements in marketing and customer service. Enhanced fax services are also positioned to move into the residential markets, as fax machines become a low-cost commodity like the telephone, VCR and television.

"According to survey respondents, the need for integrating electronic mail with other key applications is becoming an increasingly important priority."

Integration Need Cited

According to survey respondents, the need for integrating electronic mail with other key applications is becoming an increasingly important priority. The focus of electronic mail is now shifting to include more structured, application-specific activities and expanding to include a broader range of applications and enterprise-wide services. IDC believes that end users are looking to integrate electronic mail function within their specific application types, and as a result, they place strategic importance on products and services that will be able to provide this capability.

The number of voicemail systems installed at surveyed sites is up 75% from last year. This indicates an increased reliance on voicemail as an internal/external messaging device. Interestingly, voicemail is growing faster than electronic mail, which itself is up a healthy 46% from last year. Overall, electronic mail and standalone fax machines still maintain higher penetration rates than voicemail. IDC believes, based on reported 1992 purchase intentions, that by 1993, the penetration rate of voicemail will equal that of both electronic mail and fax machines.

There are many architectural issues to consider when implementing integrated electronic messaging, particularly modular, multivendor client/server-based messaging systems. The high growth of desktop platforms and their impact on communications has given them a significant bearing on LAN-based electronic messaging and groupware application purchasing dynamics. Respondents relate how much importance they place on the support of various desktop platforms. The four desktop platforms surveyed are:

- Microsoft Windows
- OS/2 Presentation Manager
- UNIX
- Macintosh.

By far, the platform that leads in importance is Microsoft Windows, which is considered important by 57% of the respondents, and unimportant by 23%. This shows that its importance has roughly doubled in the last year, when 27% of the respondents viewed it as important. OS/2 Presentation Manager support, UNIX-client support and Macintosh client support all fare significantly less well than Windows in users' views of importance. In all three cases, more respondents view them as unimportant (61%, 52% and 55%, respectively) than important (22%, 24% and 30%, respectively). Despite these less than favorable numbers, IDC acknowledges that OS/2, UNIX and Macintosh all have loyal, albeit smaller, followings, which represent additional market opportunity. We expect developers with sufficient resources to support multiple platforms, and therefore, to develop on these platforms secondarily.

Major Trends

Without being prompted with choices, respondents identified their view of the major purchasing trend in electronic messaging in the coming year. Grouping the responses into major categories according to frequency of their occurrence shows three major purchasing trends:

- Purchase Trend I — Emphasis on X.400 and X.500 products and services.
- Purchase Trend II — Emphasis on products that can integrate various messaging technologies.
- Purchase Trend III — Growth of the LAN-centric electronic mail environment and LAN-based electronic mail solutions.

People wor
Their Window
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SmartSuite from Lotus... the complete business solution for Windows™ desktops.

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"Lotus 1-2-3 for Windows is completely Windows and completely 1-2-3."
–Windows Magazine, 11/91

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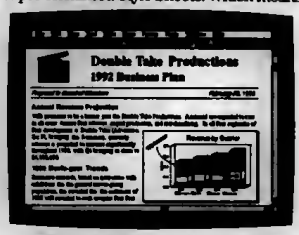

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manage the design and layout of your presentation for you. Simply select the design you like, follow the on-screen prompts and fill in the blanks with text and graphics. It's that simple. And if you've never used a presentation program before, QuickStart, its on-line tutorial, will get you up and running in minutes.

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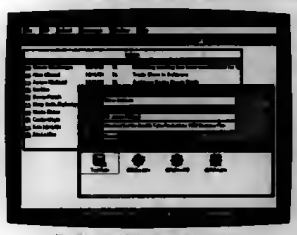
–PC Computing, 11/91



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1-2-3, Ami Pro, Freelance Graphics, and cc:Mail

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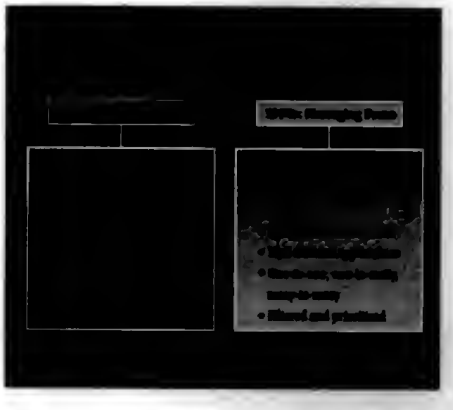
to business that includes an emphasis on quality and employee participation. As part of this process, companies will increasingly purchase only essential technology products and services. Electronic mail is one of these essentials.



Flattening of Organizations

Progressive companies no longer take a top-down approach to running their businesses. Active involvement by even the most senior management with the rank and file is becoming more common. At the same time, organizations are shedding management layers and adding more matrix organizations. This combination of factors has set the stage for a significantly wider use of electronic mail. In fact, it is not unusual for CEOs of billion-dollar companies to be regularly and actively involved in electronic mail-based conversations.

APPLICATION FOCUS

In order for electronic mail to realize its full potential, it must be accessible not only from a discrete electronic mail application, but from whatever application a user happens to be in. Typically, the concept of electronic mail enabling is associated with PC-based application software, but host- and workstation-based applications can also be enabled.

From a user's point of view, an electronic mail-enabled application would treat mail like a utility — such as a spell checker or printer driver — within the application. The fact that at minimum the message will need to travel over a LAN or even a WAN need not be known by the user. The capability should be seamlessly included within the desktop environment's native user interface. As such, electronic mail will appear as an entry on a pull-down menu in some environments, or a ring-menu in others.

In this form, electronic mail will be joined by other messaging technologies such as fax and voice transmission.

As electronic mail-enabling of applications becomes more prevalent, which IDC believes will be the case within the next two years, electronic mail will become seamless, allowing files to be sent in their native applications.

Sending around spreadsheet files with formulae embedded, rather than in final print format, will streamline the way users work together, and will be essential for workflow automation and other workgroup applications.

The increased availability and sophistication of electronic mail application program interfaces (APIs) is enabling electronic mail as an embedded utility within applications.

As a result, each environment will have its own set of interfaces supporting more customized messaging capabilities, which will enable software developers to describe and tag in detail the message content. These new messaging capabilities differ from the generally accepted concepts of interpersonal electronic mail, expanding the concept of messaging to include groups, routing and filtered selection.

LAYERED ELECTRONIC MAIL APPLICATIONS

The electronic mail of the 1990s will offer far more than the person-to-person messaging that characterized its 1980s counterpart. There is talk now about a number of application types that use electronic mail as their foundation. Some of the applications are not new — for example, calendar and scheduling facilities. The advances in this area are really in the interconnect area, where they will be implemented across different mail systems.

Three new application types will have a great impact in the near future: conferencing, filtering and agent facilities, and most dramatically, workflow.

Electronic Mail and Workflow

An appropriate application focus for electronic mail must combine a number of elements. First it must recognize changing organizational structures. This will sound the death knell for host-based systems. Second, it must leverage the innate strengths of electronic mail while adequately compensating for its weaknesses.

Workflow automation will become one of the most significant electronic mail-based applications before 1995. As required, it will improve, or at least mask, some of the weaknesses of electronic mail, while maximizing its strengths.

But what is workflow software? This is how IDC defines workflow: "Workflow software is the tool or set of tools that empowers individuals and groups of individuals in both structured and unstructured work environments to automatically manage a series of recurrent or nonrecurrent events in a way that achieves the business objectives of the company. Simultaneously, workflow software should allow feedback to management ensuring it the opportunity and ability to extend or modify those business processes as the business environment changes."

Workflow software represents the largest shift in automation in the past 10 years. Its implications go far beyond imaging technology, transaction processing systems, document management or office system technology. In fact, workflow software will become so pervasive that, for many companies, it will become the front-end to all their strategic business processing applications.

Electronic mail will play a fundamental role in workflow automation by providing the infrastructure for transport of the work packages.

Simply laying a workflow capability on top of existing electronic mail packages brings a number of immediate benefits. It provides the ability to route forms, messages or other objects. It also pro-

vides a consistent user interface across multiple environments. Application connectivity can be provided assuming that the workflow environment is built using a user interface that inherently has a data exchange facility.

Conferencing Systems

Electronic conferencing systems are not new — in fact, Digital has been delivering a conferencing system called VAXnotes since the mid-1980s. What is new, however, is the wider availability of a more appropriate infrastructure — electronic mail — to support this application concept. Conferencing systems, sometimes called electronic bulletin boards, support many-to-many communications. A conference topic is chosen, and the bulletin board for writing or reading is accessible to all or designated members of the forum.

Electronic conferencing is somewhat equivalent to the concept of a company meeting, but has some striking advantages: it does not have to happen in real-time, or all at one location. Conferencing systems streamline some activities that necessarily occurred in serial format — a memo is sent, each individual responds to the author, the author summarizes and sends out another memo, etc. That series of steps can be compressed into the introduction of a new topic in a conferencing system.

Another advantage of conferencing systems is that they provide a history of interactions. Thus, they can quickly bring a new employee up to speed on particular topics, or provide a path to understanding group contributions to the resolution of a topic.

Filters and Agents

With the proliferation of electronic mailboxes, and the increasing use of electronic mail as a standard way of intra- and inter-company communications, electronic mail management has become an increasing concern. It is not unusual for employees in a company with an electronic mail culture to return from a week's vacation with literally hundreds of unread messages waiting.

Users are searching for automated ways of managing both incoming and outgoing mail, and mail filters or agents are one way to do so. A mail filter can intelligently discern, and act on, electronic mail messages

So, for example, there is hope for the beleaguered user just back from vacation. Next time, that user can set up a filter that will keep watch over all incoming mail, and sort, delete, forward or respond to mail based on certain established rules. For example, all mail from a manager could be forwarded to the secretary for review and response. All mail from colleagues can be sent a reply that states the user is on vacation and will return next week. All mail from a mailing list can be automatically deleted.

The reach of filtering agents can extend beyond the individual's desktop for more centralized control of electronic mail systems. Server-based filtering can be set up to manage the mail system by executing some system-wide rules. For example, a server-based agent could be set up to automatically notify a user that his mailbox has more than 300 messages. Or similarly, a server-based agent can be set up to automatically delete all messages over three months old.

SUMMARY

Clearly, electronic mail still has some maturing to do, but it is better to contend with immature technology than it is to stand by obsolete alternatives. Most noticeably, functions such as directory synchronization, interoperability of host- and LAN-based systems are still outstanding issues. On the brighter side, electronic mail continues to receive a great deal of development resources and improvements are delivered month by month. It is critically important that electronic mail be permitted to evolve and be redefined even as the businesses and organizations it serves also redefine themselves.

It is also clear that electronic mail will be the foundation of a series of new applications, such as workflow software and conferencing systems, which are aimed at automating relationships and the roles of people, rather than just transactions. As a result, electronic mail will rightfully be known as the backbone of corporate change.

When everything works together, everyone works better.

Today, more and more businesses are turning to computer networks to help connect their people. They're also turning to Lotus® for breakthrough communication products like Lotus Notes® and cc:Mail.™ Whether it's sending a mail message with cc:Mail or conducting a global brainstorming session with Notes, both of these products allow people to work together better than ever before. Regardless of the computing environments or network systems that are in place.

Of course, the same principle that applies to people working together also applies to products working together on your desktop. Which is why we offer Ami Pro,™ Freelance Graphics™ and 1-2-3,® our award-winning Windows™ applications that work seamlessly together. Each, in fact, is fully integrated with the other. And fully compatible with earlier releases. Each gives you a common interface, a common install procedure and common features like our unique SmartIcons.™

But even more importantly, we've taken our desktop applications and integrated them with our communication products. For instance, since all our Windows applications are mail-enabled, you can use cc:Mail to send a "live" file to anyone you work with without having to leave the application. And since Notes also serves as an environment for application sharing on a network, you can use it to easily access and share information across your favorite applications.

So if increasing your organization's productivity is as important to you as we think it is, it's time to turn to the company that offers you the products that truly exploit the productivity gains found in today's networked computing environments.

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Berst

CONTINUED FROM PAGE 37

the following tips and you can avoid these common mistakes:

• **Be consistent.** This is far and away the most important rule. Don't let your programmers reinvent the interface wheel. Because their new approach will be used with many other programs, it is counterproductive to allow their program to blaze new trails.

Enforcing consistency is mostly common sense. If you are using a suite of products from a major vendor, copy the look of those products.

• **Stay organized.** You don't have to provide all functions at all times. Organize tasks: Group functions logically into different menus. On the menus, put functions into subgroups with separator bars. In the dialog boxes, group related functions with boxes. Once you've got a scheme in place, test it with users. Plan to refine it several times until it is just right.

• **Provide visual feedback.** Change the cursor to an hourglass for a short wait or a message box with progress indicator for a long wait. Keep audible feedback to a minimum.

• **Make it flexible.** Make it easy for users to adapt the program to their work style. Give them options. For instance, create accelerator keys for the menus so users can use the keyboard instead of the mouse. Provide basic and advanced versions of the menus. Let users customize their tool bar or turn off components they don't want to see.

• **Make common tasks easy.** Put frequently used functions onto a tool bar for quick access. Provide default choices everywhere. Provide helpful, descriptive error messages with suggested corrections. This may require some usability research to determine which functions your users perform most often.

• **Don't get cute.** A too-cutesy interface results in a cluttered, hard-to-follow program.

• **Don't switch from English to hieroglyphics.** Just because Windows lets you represent functions with icons doesn't mean you should abandon text labels or overdo the use of tool bar buttons. When you use buttons or pictures, make sure they make sense.

• **Spend the time to define a grammar and a syntax for all buttons.** Use the same icons in all your programs. Otherwise, you'll make it difficult for users to switch between applications.

Berst is the publisher of Redmond, Wash.-based "Windows Watcher" newsletter, a monthly briefing service for software executives and corporate technology managers.

July viruses: Irritating but relatively harmless

BY JAMES DALY
CW STAFF

The crop of viruses scheduled to rear their ugly heads this month will be like mosquitoes at a barbecue — a nuisance and not much more. There are, however, two unusual viruses that may activate this month, according to officials at Fifth Generation Systems, Inc., a Baton Rouge, La.-based developer of data security software.

Mendoza is a rare strain of the Jerusalem or Friday the 13th virus that may strike anytime between July 1 and the end of the year. When activated, it deletes the infected file and all files in the directory with the infected file. It differs from Jerusalem in that it can crop up at any time during the last half of the year.

Another unusual customer is Argentina, a nondestructive virus that infects all .COM files, except COMMAND.COM. It is set to go off Thursday, July 9, when a message appears in Spanish noting the day's importance in Argentina's struggle for independence, according to Fifth Generation officials.

As with all viruses, these dates of occurrence are made for general awareness and are not exclusive. Many a skilled programmer can do a little tinkering under the hood to change a few lines of code and make the virus go off whenever they desire. Experts advise scanning any new disk before using it as well as following the three basic rules of virus protection: backup, backup, backup.

Characteristics of other July viruses that are slated to go off include the following:

• **Bad Guy 2, Exterminator, Demon** — All are forms of the I-B virus, which is a nonresident overwriting virus that infects all .COM programs in the current directory. Programs infected will have the beginning of the program overwritten by viral code.

• **AH!** — This strain is based on the V1824 virus and infects .COM programs. Symptoms include crashes and a decrease in available memory.

• **Crew 2480** — A nonmemory resident infector of .COM programs that are more than 10K bytes in size. It changes the file date and hangs up the system, which then reboots.

• **Day 10** — An infector of .COM programs. Symptoms include a .COM file growth, file date and time change and hard disk corruption.

• **Alabama** — Remains resident and infects .EXE files only. Moves into memory when any .EXE file containing the virus is executed. One hour after activation, the virus displays this message in a flashing box: "Software Copies Prohibited By International Law Box 1055 Tuscambia Alabama USA." It affects runtime operation, corrupts program or overlay files and corrupts file linkage.

• **Frere Jacques** — Plays the tune "Frere Jacques" on Fridays; .COM and .EXE files become larger. Available memory may decrease; systems may crash.

• **Pay Day** — .EXE and .COM files become larger. The system may slow down. Files may be deleted on any Friday except Friday the 13th.

• **Flip** — Modifies .COM, .EXE, overlay files and the boot sector and partition tables. When activated, the virus slips the screen 90 degrees. It may also cause damage and corrupt some data files.

• **Frog's Alley** — Corrupts COMMAND.COM and .COM files.

• **Taiwan** — Infects .COM files, including COMMAND.COM files. When an infected program is run on the eighth day of any month, the virus will perform an absolute disk write for 160 sectors, starting at logical sector 0 on the C and D drives, overwriting the partition tables, boot sector, file allocation tables and root directories.

• **Monxla** — Nature of the damage is unknown.

• **Skism** — Host files are .COM, .EXE and overlay files. Skism may affect computer performance or functions, and it corrupts the programs that it infects.

• **Form** — Resides on boot sector of floppies or the partition table of hard disks. It seems to do no intentional damage.

Boom time

Security experts suggest using any of a number of scanning software packages in order to detect and eliminate viruses.

These applications are offered by a wide variety of firms including McAfee Associates, Fifth Generation Systems, Symantec Corp. and Central Point Software, Inc. Bulletin board services may also offer free shareware scanning applications.

According to the FGS Virus Watch, the following viruses are expected to hit during the month of July:

JULY

All month: Got you, Crew 2480, Mendoza
Each Monday: Bad Guy 2, Exterminator
Each Tuesday: Demon, AH!
Each Friday: Alabama, Frere Jacques, Pay Day. Skism will hit the last three Fridays of the month.
Every 10 days (July 10, 20, 30): Day 10
July 2: Flip
July 5: Frog's Alley
July 8: Taiwan
July 9: Argentina
July 13: Monxla
July 18: Form 18
July 24: Form

NEW PRODUCTS

Software application packages

Hayes Microcomputer Products, Inc. has announced Smartcom for Windows Version 1.0, an asynchronous communications software package for Microsoft Corp. Windows Version 3.0 and 3.1.

Smartcom for Windows supports multiple protocols for file transfers and advanced terminal emulations.

Users can create custom buttons and keyboard macros and configure keyboard layouts to map to a particular system application. A Simple Communications Programming Environment feature lets users automate repetitive tasks and create menu-driven interaction with remote systems.

Smartcom for Windows Version 1.0 costs $179.

Hayes Microcomputer
5835 Peachtree Corners, East
Norcross, Ga. 30092
(404) 840-9200

Metz Software has started shipping Metz Task Manager 2.0.

Version 2.0 provides Microsoft Corp.'s Windows users access to files that are being used continually. The product was designed for Windows 3.1 but also supports Windows 3.0.

The Metz Task Manager 2.0 has a Launch Pad capability that lets users drag and drop applications onto customizable launch buttons. Other features include a Task/Group Window, Run List and Launch Menu. Desktop Arrangement buttons and commands unclutter the Windows desktop and Quick Utilities perform routine file management tasks, according to the company.

The product costs $49.95.

Metz Software
16628 South East 8th St.
Bellevue, Wash. 98008
(206) 641-4525

IQ Software Corp. has announced Version 3.0 of Intelligent Query for MS/PC DOS. The product is a database-independent report writer and query tool.

Enhancements in this release include an expanded what-you-see-is-what-you-get screen painter that has definable areas for subheadings and page footers. User-defined margins and word wrapping are included, and long text fields can be placed in any location. A variety of report output choices have been expanded and matrix cross tabulation reports have been added for users to create spreadsheet-type summary reports.

IQ Version 3.0 ranges from $500 for a single-user license to $17,000 for a pack of 50.

IQ Software
Suite 550
3295 River Exchange Drive
Norcross, Ga. 30092
(404) 446-8880

Data storage

Mass Microsystems, Inc. has introduced the FloptiPak 21, a compact 3½-in., 21M-byte Floptical disk drive.

The product has the ability to read and write to standard 3½-in., 1.44M-byte Apple Computer, Inc. Macintosh and IBM personal computer floppy disks and 3½-in., 720K-byte disks formatted for IBM PCs and compatibles. Error correction and defect mapping features are incorporated and an optical server pattern on the disk is used for track positioning.

The FloptiPak 21 costs $699.

Mass Microsystems
810 W. Maude Ave.
Sunnyvale, Calif. 94086
(408) 522-1200

XyQuest's Signature 1.02: Friendlier but slower

Technology Analysis — A roundup of expert opinions about new products. Summaries written by new products writer Derek Slater.

XyQuest, Inc.'s Signature 1.02 is the long-awaited successor to both XyWrite and IBM's DisplayWrite. It trades in some of XyWrite's speed but retains customization options and adds a friendly interface.

Performance: Signature 1.02 features unremarkable speed, reviewers said. Predictably, the graphics editing mode is noticeably slower than the character mode.

Ease of use: The what-you-see-is-what-you-get graphics display mode makes the program easier to use.

Editing: Significant new features include keystroke macros, warm links to spreadsheet data, programmable mail-merge and nine file windows.

Output: Bitstream, Inc. Speedo fonts are included, and Signature 1.02 supports IBM's set of 800 display characters.

Documentation: The documentation earned mixed marks. *PC Magazine* called it "inaccurate" and said the command line is inadequately explained. *PC Computing* praised both the documentation and the context-sensitive on-line Help.

Overall value: Priced at $495, Signature 1.02 offers unusual power, but it still has some rough spots.

XyQuest's Signature 1.02

Reviews	Performance	Ease of use	Editing	Output	Documentation	Overall
PC Magazine 5/26/92	Fast	Editing shell	Supporting customization	No PostScript soft fonts	Often inaccurate	Powerful but erratic
PC Computing 1/92	Powerful engine	Easier to learn	Editable WYSIWYG screen	NC	Excellent	Excellent job of retooling XyWrite
PC Week 11/25/91	Graphics mode slow	Easier interface	New graphics console	NC	NC	Partials speed for friendly interface
Computer Buying World 3/92	Comparable to others	Easier than XyWrite	Three display modes	WYSIWYG	Comprehensive	Might wait for Windows
Users						
Steve Brookover, SB Consultants, Inc.	Good	Good	Very good	Very good	Good	Minor problems but very good
Joel Heller, CBS News	Very good	Good	Very good	Very good	Good	Excellent output and editing
Brenda Helm, Office of Technology Assessment, U.S. Congress	Very good	Good	Good	Good	Fair	XyWrite was better
Phil Sutton, New Tribes Mission	Good	Good	Very good	Very good	Good	Programming language is strong
Analyst						
Rachelle Thompson, DataPro Research Group	Fair	Very good	Very good	Very good	Very good	Not nearly as fast as XyWrite

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment.

Vendor background information

XyQuest was founded in 1982 to market the XyWrite word processing package. Signature was developed in conjunction with IBM; XyQuest obtained full rights to Signature in October 1991 and began shipping Signature in November. XyQuest is a private company and does not disclose financial information.

XyQuest responds

Jeff Ramsay, marketing manager:

Performance: Certain areas are in fact slower than XyWrite, but other areas are faster. Also, Version 1.02 is faster than 1.0 in a couple of areas.

Documentation: The documentation is organized differently than XyWrite's was, but it's a very good. No glaring errors have been brought to our attention.

WordStar for DOS 7.0: Good upgrade

WordStar's WordStar for DOS 7.0

Reviews	Performance	Ease of use	Editing	Output	Documentation	Overall
PC Magazine 5/26/92	Mixed results	Redesigned menus	Awesome enhancements and page preview	Supports new graphics formats	NC	Plenty of reasons to upgrade
PC Computing 4/92	Spry	Tricky page formatting	New conveniences	First-class printer support	NC	Pleasant surprise
PC Week 3/9/92	NC	Many operations remain difficult	Archaic formatting commands	Best DOS print preview	NC	Still has a few wrinkles
PC Sources 6/92	NC	Can be awkward	New macro language	New color and shading commands	NC	Capable
Users						
Robert Bloom, U.S. Army Test & Evaluation Group	Good	Very good	Good	Very good	Good	Good value for upgrades
David Rafky, St. Thomas University	Very good	Very good	Very good	Good	Good	Very fast
Bill Willoughby, W.A. International	Very good	Very good	Good	Very good	Good	Much better than 6.0
Analyst						
Bob Dunkle, Workgroup Technologies, Inc.	Very good	Very good	Good	Very good	Very good	A lot more user-friendly
Rachelle Thompson, DataPro Research Group	NC	Good	Very good	Very good	Good	Superior file compatibility

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment.

Vendor background information

WordStar reported net profit of $26,000 on revenue of just under $11 million for the quarter ended March 31, 1992. In the same quarter of 1991, the company lost $2.7 million on $10.1 million in revenue. According to the company, 51% of WordStar's revenue comes from sales outside the U.S.

WordStar responds

Lisa Linnenkohl, product manager:

Performance: This is a very fast and lean DOS word processor. Our editing comes out ahead in speed tests.

Ease of use: You never have to go down more than two levels of menus to access a function. The interface will continue to evolve, but it's solid. We're committed to the DOS platform.

WordStar International, Inc.'a WordStar for DOS 7.0 is a major step forward for a company that has fallen a long way during the past several years. The new version allows users to choose a mouse-driven menuing interface or to stick with WordStar's older command key sequences.

Performance: WordStar produced middle-of-the-road results in speed tests.

Ease of use: The new menus are improved though still not entirely intuitive.

Editing: WordStar remains a powerful text editing tool, reviewers said. New tools include a macro language with a keystroke recorder and support for 27 new graphics file formats. However, the product lags behind other DOS word processors in page layout capabilities.

Output: Editable page previews and comprehensive printer support are among WordStar's strengths. Reviewers said WordStar outshines all DOS-based competitors in print preview mode.

Overall value: The sticker price is $495, but upgrades from previous versions of WordStar or its competitors cost only $89. Reviewers said Version 7.0 is an enticing upgrade for WordStar devotees, although it may not gain many new converts.

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It's curious what passes for interoperable computer systems these days.

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If a new PS/2 56 or 57 interests you, running twice as fast on one should, too.

Application	Test*	PS/2 56/57 w/ 4MB RAM w/ Windows 3.1 & MS-DOS 5	Standard configuration PS/2 56/57 w/ 4MB RAM w/ OS/2 2.0	Times Faster
		Time in seconds	Time in seconds	
Microsoft Excel 4.0 for Windows	File Load	7.3	53.8	7.4
Lotus® 1-2-3® for Windows	Application Load	21.5	134.8	6.3
Ami Pro® 2.0 for Windows	Print	18.0	110.0	6.1
WordPerfect® 5.1 for Windows	Spellcheck	12.7	26.4	2.1

If you're like most people, you probably use applications for the Microsoft® Windows™ operating system. But if you happen to get the standard configuration PS/2® 56 or 57 with OS/2® 2.0 these days, you might notice that your programs run at substandard speeds.

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*Tests measure performance in operations commonly selected by industry publications, including PC Magazine, InfoWorld and PC WORLD, for evaluation of word processing and spreadsheet applications. Actual test files used conform to descriptions contained in PC WORLD evaluations. Tests were performed by an independent third party. Spreadsheet File Load: Time from issuance of File Open command to time user regained control of the application, based on loading a file with 253 months of assets and liabilities. Spreadsheet Application Load: The time it takes to load an application. The test was timed from when the icon was double-clicked to when the user regained control of the application. (Under the OS/2 test, the time was measured based on beginning from an OS/2 desktop.) Word Processor Print: The time it took to print a one-page document containing two text columns and a TIFF image. The test was timed from when the print command was issued until the user regained control of the application. Word Processor Spellcheck: Time required to spellcheck an 11 page document with 20 spelling errors. The test was timed from when the Spellcheck command was issued until the user regained control of the application. **Suggested retail price. Reseller prices may vary. For more information, call (800) 541-1261, Dept. HG8. Outside the U.S. and Canada, call (206) 936-8661. In Canada, call (800) 563-9048. © 1992 Microsoft Corporation. All rights reserved. Printed in the USA. Microsoft and MS-DOS are registered trademarks and Windows is a trademark of Microsoft Corporation. IBM, OS/2 and PS/2 are registered trademarks of International Business Machines Corporation. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. Ami Pro is a trademark of Samna Corporation, a wholly-owned subsidiary of Lotus Development Corporation. WordPerfect is a registered trademark of WordPerfect Corporation.

CBIS makes Notes key element of IS strategy

BY ROSEMARY HAMILTON
CW STAFF

MAITLAND, Fla. — Cincinnati Bell Information Systems, Inc. (CBIS) is extending its use of Lotus Development Corp.'s Notes groupware software to make it a key piece of the CBIS information systems strategy.

In one year, the company has increased its number of users to 700 and recently added Lotus' imaging software to the Notes platform, which Lotus officially announced earlier this month. CBIS is now making plans to link several applications, such as financial reports, to Notes so users can work with them from within the Notes environment.

"We are starting to build a big infrastructure based on Notes," said Greg Buchanan, director of technology planning and development at CBIS, which first installed Notes in April 1991.

While CBIS is developing various kinds of applications on the Notes platform, the overall purpose of the workgroup software is to boost communications beyond basic electronic mail, Buchanan said.

CBIS, which operates as a subsidiary of Cincinnati Bell and provides integration and IS services, is using Notes in sales, marketing and development. In each case, the key objective is better staff interaction.

For example, the sales and marketing group uses Notes for account management and account tracking. "It was difficult before, being as spread out as we are," Buchanan said. "It was hard to have multiple people review a [proposal]. We'd burn out faxes or store it out on the LAN and pull in files."

The Notes applications allow sales and marketing staff members to work on proposals by participating in an electronic meeting of sorts by accessing documentation and adding comments.

The latest CBIS step was the addition of Lotus Notes: Document Imaging, a companion product to Notes that Lotus co-developed with Eastman Kodak Co. and officially announced earlier this month. The software, which CBIS beta-tested, allows users to start up an imaging application from within Notes, including managing and storing images within the workgroup environment.

CBIS plans to use the software to better handle client information by putting large chunks of documentation online.

Looking ahead, Buchanan said, the company is hoping to link some applications with the Notes platform. While Lotus is working on group-enabling applications such as 1-2-3, Buchanan said there is no plan to work directly with Lotus on its own integration plan.

Much ado about source code

Arrival of Unix System V, Release 4.2 leaves USL's bigger customers cold

ANALYSIS

BY MARYFRAN JOHNSON
CW STAFF

SUMMIT, N.J. — The boisterous debut of Unix System Laboratories, Inc.'s (USL) trimmed-down desktop operating system — Unix System V, Release 4.2 — landed like a lead balloon on some of USL's biggest customers.

Sun Microsystems, Inc., which buys its Unix System V, Release 4 source code from USL, is not amused by this new competitive force. The timing was also unfortunate for Sun's June 23 introduction of Solaris 2.0, which arrived on the heels of USL's "Destiny" 4.2 announcement the week before.

"It appears that USL, the guardian of SVR4 source [code] technology, and the one that is supposed to ensure a level playing field, has decided to compete with its own customers," said Bill Larson, vice president of marketing at Sunsoft, Inc., the Sun subsidiary in charge of system software.

USL's Pieper *is changing rules of Unix game*

Another Unix competitor, The Santa Cruz Operation (SCO), also looked on the recent USL hoopla as much ado about source code. USL sells its System V Unix code to system and software vendors who use it as a technology base on which to build their own products.

"We're trying to tell people that we are already shipping a production-quality product that meets the standards everyone is talking

Continued on page 64

Fulcrum releases Ful/Text Version 6 retrieval engine

BY CHRISTOPHER LINDQUIST
CW STAFF

Find (text or document) and retrieval within 15 and date aft 1/1/91.

Look familiar? Searching for a document using standard techniques, such as Boolean operators, can take considerable planning. And narrowing down a search can take time that would be better spent reading the retrieved documents.

Ottawa-based Fulcrum Technologies, Inc. has unveiled what it hopes is a better technique — "intuitive searching."

The Ful/Text Version 6 retrieval engine allows users to perform searches in the standard ways — such as Boolean and wild cards — but also allows a user to define a segment of text and say, "Find me more documents like this one."

The engine automatically eliminates common words and assigns "weights" to other words based on their frequency in the text sample vs. their average frequency in all documents.

Searches can be performed in a much more abstract manner and can be built quickly by simply pointing and clicking with a mouse. Thus users do not need complex search commands.

The Ful/Text engine is sold without a user interface. Customers are supplied with a developer's kit that allows them to either attach Ful/Text to existing applications or develop new applications around it.

Ful/Text Version 6 is currently available for Sun Microsystems, Inc.'s Scalable Processor Architecture platform. Versions for Microsoft Corp.'s Windows, IBM's OS/2, Apple Computer, Inc.'s Macintosh and other Unix platforms are slated to be available later this year, according to the company.

Pricing for Ful/Text ranges from $5,000 to $50,000.

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By the end of this week Computerworld readers will have spent over **$40.5 Billion** on Information Technology this year – representing nearly half of all IT spending to date in 1992.

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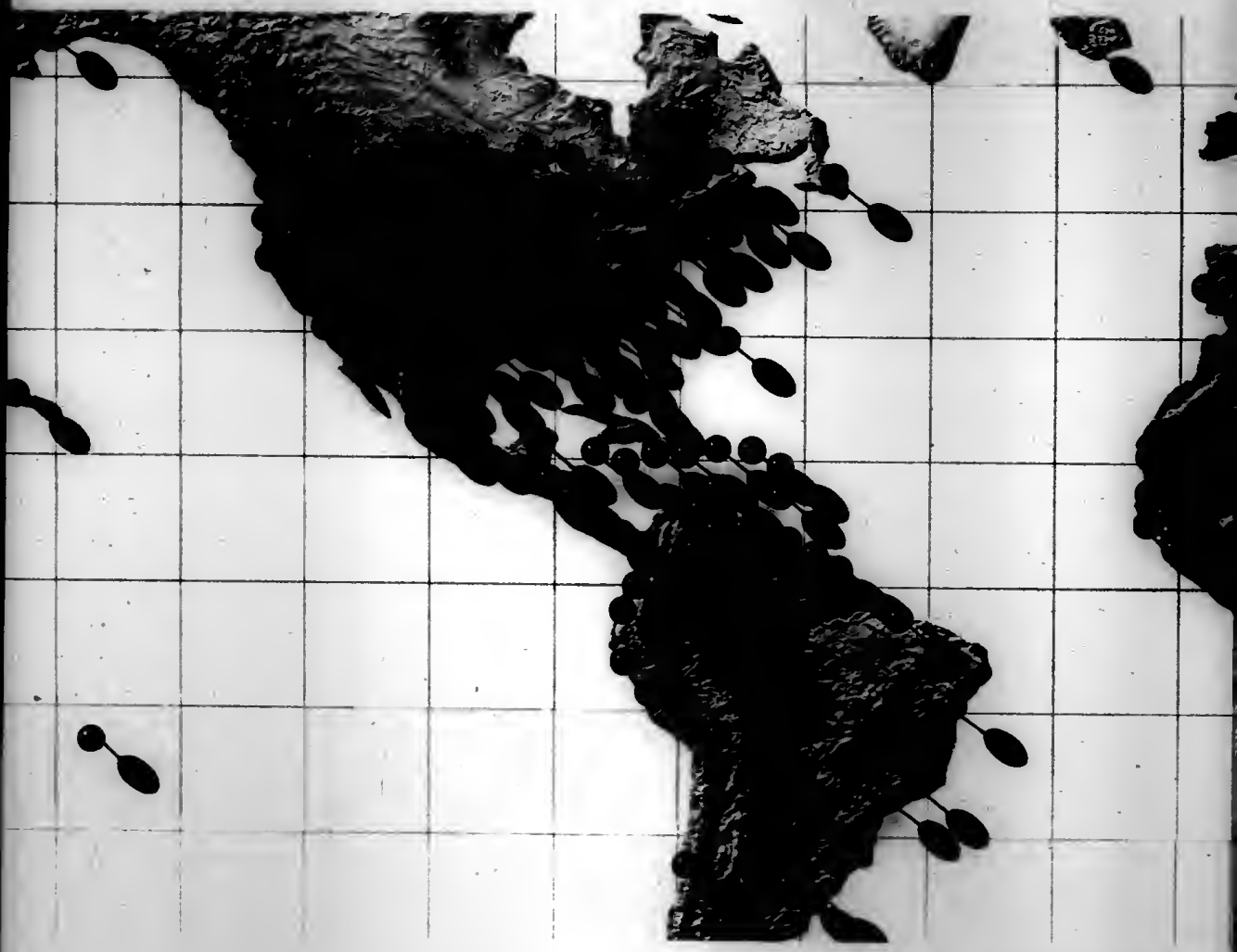

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Being global. Of course, your global operations can't be islands, you have to manage the whole, and we'll help you do it. Our branches may be local, but they're all on the same team, and they'll support you in a consistent way no matter where you go.

For example, Woolworth, Burger King™ and 3M™ use our Selected International Account program. It helps them bridge cultural, legal and technical differences by providing a single point of contact that aligns IBM's worldwide presence with theirs.

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To learn more, call our International Marketing Information Desk at 1-800 IBM-1774.

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IN BRIEF

SQL group completes platform

■ **The SQL Access Group** recently completed the Phase II Technical Specification, which includes a Call-Level Interface standard and Transmission Control Protocol/Internet Protocol network support. With this work done, the group said it now has a platform that will allow basic heterogeneous interoperability for client/server computing.

■ **Lotus Development Corp.** recently provided the **Chicago Kent College of Law** with a bunch of freebies, including 100 copies of its Notes workgroup software. The college planned to use the Lotus software at its Conference for Law School Computing Professionals earlier this month to maintain information and communications on conference proceedings.

■ **Citrix Systems, Inc.** signed a deal with **Microsoft Corp.** for a strategic alliance that calls for the two companies to "cooperate on technologies for advanced operating systems." Microsoft said it expects Citrix to play a key role in providing multiuser and network extension capabilities to future Microsoft products. Citrix sells a multiuser version of IBM's OS/2. Company founder Edward Iacobucci was part of the original OS/2 design team.

■ **IXI Corp.** in Cambridge, England, launched its Deskworks 1.0 last week as a suite of tightly integrated productivity applications for users of **Sun Microsystems, Inc.** workstations running the **Open Software Foundation's** Motif graphical user interface. The groupware applications were designed for users of IXI's X.desktop, which, according to X Business Group, has 64% of the third-party desktop manager market. Deskworks is priced from $75 to $195, depending on the number of users.

Nomura buys back office automation

BY THOMAS HOFFMAN
CW STAFF

NEW YORK — Nomura Securities International, the New York-based brokerage firm, has contracted with The Davidsohn Group, a New York consultancy, to install its Autocage and Autobank Pledge software systems to help the brokerage automate several of its back-office operations. The size of the contract was not disclosed.

According to George Davidsohn, president and chief executive officer of the consultancy, Autocage is a Unix-based software system that Nomura will use to receive and deliver various securities functions between different brokers and trading firms.

Davidsohn said Autocage handles pending settlements on securities and "ages" securities to the date when the security issue was due to be settled. In addition, the system tracks dividend payments for corporations and due bills and accommodates other transactions between brokerages and The Depository Trust Corp., Wall Street's largest clearinghouse for securities.

Executives at Nomura declined to comment on the contract, but Davidsohn said the company will use Autocage on Compaq Computer Corp. personal computers strung together over an Ethernet local-area network running Transmission Control Protocol/Internet Protocol.

Similar system

Under the terms of the contract, The Davidsohn Group will provide three years of maintenance on the software, including annual software upgrades. Davidsohn said New York brokerage Morgan Stanley Group, Inc. is using a similar system, which his company developed, and that has enabled Morgan Stanley to reduce its back-office staff while eliminating many of the errors caused by the prior manual operations of these functions.

Autobank Pledge, also a Unix-based system, was developed to enable brokerages to settle daily monetary transactions such as pledging securities of equal value against loans borrowed from banks. Autobank Pledge also provides a daily list of securities for brokerages to pledge to lending banks; it is available with daily updates.

There is much ado about source code

CONTINUED FROM PAGE 61

about," said Doug Michels, executive vice president at SCO. His SCO Unix is based on an early System V Unix version.

Yet there is no arguing that the rules of the Unix game are changing under USL President Roel Pieper.

He is steering USL into the role of supplier of both source code and binary executable code, which he calls "market-ready" code. The joint venture between USL and Novell, Inc. — Univel, Inc. — is expected to be the first to go to market this fall with a Release 4.2-based product called Unixware.

"Univel is going to go head-to-head with SCO and with Solaris," said Rikki Kirzner, an analyst at Dataquest, Inc. in San Jose, Calif. But she and other analysts agreed that USL's biggest target is Microsoft Corp. and its dominance of Intel Corp.-based hardware.

There are already more than 6,000 Unix applications that will reportedly run under Release 4.2 on Intel platforms — primarily those written to System V Release 4, SCO Unix, SunOS or the Berkeley Software Distribution Unix derivative. Some applications may need a recompile, but many will run unmodified, according to USL. By year's end, USL plans to have Release 4.2 running on Mips Computer Systems, Inc.'s and Sun's Scalable Processor Architecture platforms as well.

"We are on a very aggressive path to see that Unix is a competitive strength against Microsoft on all hardware platforms," Pieper said last week. "What we have added is a binary master of the product, which allows clone manufacturers, even Univel itself, to turn our technology into a product overnight."

If that means ruffling some feathers at Sun, then so be it, Pieper added. Even so, there are high-level agreements in place between USL and Sunsoft to ensure future compatibility for each company's Unix implementations (see story at right).

"We are doing things for the good of Unix, and those things are, unfortunately, not in all cases for the good of Sun," Pieper acknowledged.

So while the Unix wars may have arrived at an armistice, some political hostilities linger. Pieper said Sun is particularly annoyed by USL's support of the Open Software Foundation's (OSF) Motif graphical user interface, Distributed Computing Environment and Distributed Management Environment technologies.

In the works

Still, those OSF technologies are important to companies such as IBM and Hewlett-Packard Co., and HP is reportedly negotiating with USL to determine what role System V Unix will play in its own open systems future. Even Digital Equipment Corp., which has chosen the OSF/1 kernel as its strategic Unix, is planning to put its Network Application Support services on USL's System V Release 4.2 Unix.

"We are having very serious discussions [with HP and other vendors], but I cannot talk about the status of them," Pieper said. "The fundamental change here is that USL is getting into a position that allows these discussions . . . to take place."

By this time next year, USL and OSF expect to have a high level of compatibility in place for the "middleware" level above their respective operating systems. "That will allow SVR4 to support OSF/1-compatible applications," Pieper noted.

On the bright side

While Sun and USL are currently at odds over USL's newly competitive stance in the Unix marketplace, there are still significant points of agreement between the two.

Unix International, Inc., the nonprofit organization that directs the evolution of Unix System V, is working with both Sun and USL on the following common set of Unix messages to encourage users and software vendors to invest in System V:

- All Unix variants based on System V, Release 4 will be compatible, although applications are likely to need recompiling when moving among hardware platforms.
- Sun's Solaris 2.0 and USL's System V, Release 4.2 will both conform to the new version of USL's Application Binary Interface (ABI) coming later this year. Both firms have committed to maintaining ABI compatibility in the future.
- Sun and USL will both follow Unix International's "road map" of industry specifications, and both have committed to making their desktop environments interoperable.

MARYFRAN JOHNSON

NEW PRODUCTS

Local-area network software

Distinct Corp. has started shipping a fully integrated Transmission Control Protocol/Internet Protocol (TCP/IP) solution for Microsoft Corp.'s Windows.

Distinct FTP allows users to transfer ASCII and binary files over local- and wide-area networks by tagging the files or entire directories and dragging them to the destination directory. Files can also be transferred between remote TCP/IP servers and locally mounted remote drives such as Novell, Inc.'s NetWare. Remote files can be tagged, dragged and dropped to a local printer.

Distinct TCP/IP for Windows costs $395. The Software Development Kit costs $495.

Distinct
14082 Loma Rio Drive
Saratoga, Calif. 95070
(408) 741-0781

Electronic mail

Alisa Systems, Inc. has released AlisaMail 4.0, an enhancement to the company's electronic-mail integration and directory services product.

Version 4.0 supports a number of personal computer local-area network-based E-mail systems that can be seamlessly connected to other standard E-mail systems. AlisaMail 4.0 allows a PC user to send an E-mail message directly to an Apple Computer, Inc. Macintosh or Digital Equipment Corp. VAX user without knowing more than the person's name.

Entry-level configuration prices for AlisaMail Version 4.0 begin at $10,000, according to the company.

Alisa Systems
Suite 175
221 E. Walnut St.
Pasadena, Calif. 91101
(818) 792-9474

Stanford navigates client/server peaks, valleys

Budgetary constraints spur experimentation

BY JOANIE M. WEXLER
CW STAFF

PALO ALTO, Calif. — Stanford University is testing the client/server waters with several imaging applications campuswide.

The year-old project is aimed at speeding up and enriching the value of systems in the human resources, fund-raising, travel and reimbursement and other departments — as well as reducing costs in physical storage space, explained Cedric S. Bennett, director of the university's application support center.

New York-based Image Business Systems Corp.'s ImageSystem software, running on IBM RISC System/6000 servers, is at the heart of the university's neophyte imaging pilots. A mix of Unix, Apple Computer, Inc. Macintosh and Microsoft Corp. Windows clients span 300 departments.

Forced creativity

Bennett said Stanford's budgetary constraints have spurred experimentation with imaging technology. For example, the human resources department wanted to hasten the transmission of clerical job applicant information for which the job market is "very competitive in the [Silicon] Valley," Bennett explained.

Scanned-in resumes can now be faxed directly from the ImageStations to departments requesting them rather than being hunted for and delivered manually. The changed procedure has reduced department head count by three staffers.

Other applications include scanning travel receipts to speed up the reimbursement process and creating electronic files of correspondence, newspaper clippings and other information about charitable donors to enhance the fund-raising process.

Bennett said the university is easing into client/server with nontransaction processing-oriented applications largely because "we think the client/server development tools are not robust enough for the dimension of complexity added by on-line transaction processing."

Powering up campuswide

However, the multiyear client/server migration "will eventually touch many areas of the university," Bennett said, adding that downsizing "is more about interoperability and empowering desktop users" than it is about saving hardware costs, which he estimated accounts for just 10% to 15% of overall computing expenses.

The client/server experience has taught the information services department a few lessons about network bottlenecks (see story at right) and the domino effect of running distributed applications that rely on multiple computing resources.

"There are an incredible number of pieces and parts" involved in shifting from centralized, terminal-to-host computing to distributed client/server computing, Bennett said. "If any one of them doesn't work right, the whole thing fails."

Imaging data threatens net response time

BY JOANIE M. WEXLER
CW STAFF

PALO ALTO, Calif. — A feet-wetting client/server project at Stanford University has triggered some network congestion repercussions that currently can be handled only by overengineering the network.

Bill Yundt, Stanford's director of networking and communication systems, explained that an imaging pilot aimed at speeding up the campuswide flow of clerical job applicant data (see story at left) "caused some latency problems, principally due to lots of traffic impinging on a particular router."

Stanford runs a 200-Ethernet internetwork tied together by Cisco Systems, Inc. routers and a variety of bridges. Yundt explained that for organizations looking to implement time-critical imaging applications enterprisewide, transport-level protocols and interrouter communications protocols must be modified so that priority can be given to imaging and other delay-sensitive traffic.

ID, please

Yundt said the industry needs a way for each packet to be matched to required performance characteristics — an issue starting to be addressed by standards bodies. Currently, he said, "There is no way for an application to identify itself to the routing mechanism and tell it what [bandwidth] it needs."

Thus, routers treat packets on a first-come, first-serve basis, a scheme that intermixes store-and-forward with delay-sensitive traffic and can thus cause latency problems with delivery of image and other time-critical data.

Yundt explained that imposing per-application priority schemes today requires separating applications onto different networks. "You must dedicate machines to applications with particular path requirements, which could mean having 28 computers on your desk connected to separate networks. This defeats the whole purpose of networking," he said.

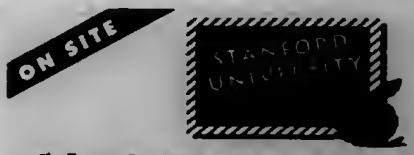
When the imaging pilot started, Yundt said, the university was running Ethernet both in the backbone and as individual local-area network segments. It has since upgraded to a 100M bit/sec. Fiber Distributed Data Interface (FDDI) backbone based on 11 Digital Equipment Corp. dual-attached concentrators.

Concentrators link multiple nodes to the FDDI backbone to reduce the number of directly attached devices. This protects the backbone from segmentation should devices fail.

The university then reconfigured the network with an extra Ethernet to reduce the number of hops between server and client end points.

Some router companies, such as Advanced Computer Communications in Cupertino, Calif., have been outfitting their internetworking products with features that even out bandwidth access so that bulk file transfers do not destroy response time for other users [CW, May 25].

The Advanced Computer scheme, however, aims to optimize bandwidth use by remembering the order in which computing resources have transmitted packets and then "fairly" allocating bandwidth to packets as they arrive. It does not address the application-specific requirements, Yundt said.



- **Challenge:** Ease into client/server computing with noncritical imaging applications aimed at speeding up processes, enriching the value of systems and reducing costs.
- **Technology:** Image Business Systems Corp.'s imaging software; IBM RS/6000 servers, Apple Macintosh, Microsoft Windows and Unix clients.
- **Impact:** Pros: Reduced head count, electronic availability of more information, empowered desktop users. Cons: Network bottlenecks, networkwide vulnerability.

Vendors pressured to comply with OmniPoint

BY ELISABETH HORWITT
CW STAFF

The Network Management Forum User Council — a group of heavy hitters that includes Shell Oil Co., Motorola, Inc., Du Pont Co. and DHL Systems, Inc. — is pressuring vendors to comply with certain network management standards by publishing a scorecard that rates vendors on their compliance.

The standards targeted for implementation by the users are embodied in OmniPoint, a set of specifications that have been jointly defined by the forum's 100-plus vendor members. The goal is to get vendors to agree on a common set of standards.

Phase 1 of the OmniPoint program, due out in August, combines the Open Systems Interconnect (OSI) Common Management Information Protocol (CMIP) with application programming interfaces from the Open Software Foundation's (OSF) Distributed Management Environment (DME).

Two weeks ago, the forum's user council announced that it had sent a survey to 100 vendors asking that they spell out their OmniPoint commitment.

The questionnaire is a message to vendors that the user council "wants open, interoperable network management systems," said Don Golden, a systems management program manager at Shell and a member of the council.

Fasten your seat belts

AT&T, IBM and Digital Equipment Corp. all indicated that, while they are in the process of implementing Network Management Forum specifications, they would significantly speed up their efforts if a group of powerful users demanded OmniPoint-compliant products.

"We currently have no announcement to ship products based on the CMIP structure because of a general lack of demand in the marketplace," AT&T network management director Bill Gilbert said. "Skeptics are asking, 'Are people spending money on these systems?' Certainly if 17 major firms say, 'We have spending plans based on [OmniPoint],' we would listen."

However, while the council members are 100% behind OmniPoint, their parent companies have not necessarily made that commitment. "We are all working on the process of internal marketing within our companies," Golden said. "I want to get OmniPoint compliance into our procurement direction, but I have work to do to sell that to management."

"One reason for the questionnaire and scorecard is to test the waters — find out what vendors are committed. We need to get a critical mass of both users and vendors," said Ron Scott, a council member and section head of telecommunications operations at Ontario Hydro.

A critical user mass may not be that far away — particularly since OmniPoint goes beyond the original "OSI purity" of forum specifications to encompass popular de facto standards such as Simple Network Management Protocol and the OSF's DME.

Metropolitan Life Insurance Co., for example, would prefer to protect its investment by looking at systems aligned with OSI, but also with the OSF DME model, said Steve Bortnyk, the company's director of network management.

"Certainly companies like ours are interested in monitoring [OmniPoint's] progress," he added. "The banding together of vendors to agree to implement along certain lines is a hopeful sign."

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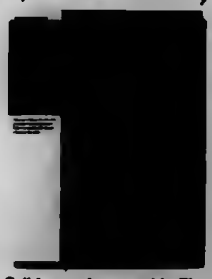

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Bidirectional network management costs big

Implementing IBM/AT&T accord set at $90K

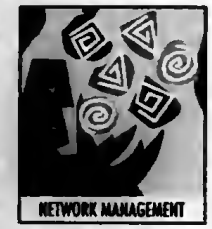
BY ELISABETH HORWITT
CW STAFF

Next fall, users will be able to manage their physical network devices via IBM's NetView — or conversely, manage their IBM Systems Network Architecture (SNA) installations via AT&T's Accumaster Integrator. However, the software to provide this bidirectional information flow costs upward of $90,000 — not including the network management systems themselves (see story at right).

IBM and AT&T's recent disclosure of bidirectional network management capability [CW, June 22] is the fruition of a co-development agreement announced in March 1991. It targets users who want to integrate the management of their private and carrier-based network installations with that of their IBM networks.

For example, when NetView operators discover that several dozen users have just lost their SNA sessions, they can quickly query Accumaster as to whether the problem is with a physical network device or carrier link. Conversely, the network control center can query NetView to find out the origin of a sudden burst of SNA traffic that is clogging the ports on a multiplexer.

In addition, the two systems can update each other's configuration databases, enabling information systems and telecommunications departments to maintain more accurate and consistent records of the total network for inventory and change management purposes, AT&T said.



Indeed, the integration of the two network management systems goes beyond IBM and AT&T devices, since both vendors have broadened their respective products' multivendor support over the years. A variety of third-party network device vendors now send alerts to Accumaster or to NetView. In addition, IBM's system can manage local-area networks through IBM products such as NetView/6000 and LAN Network Manager.

The question is whether corporations will find the additional integration worth the price of the additional software. Blue Cross/Blue Shield, for example, currently uses Timeplex, Inc.'s TimeView in concert with NetView to provide integrated management of its SNA and telecommunications networks, according to Robert Schultz, a senior consultant at the health insurance firm. Timeplex has provided a way for its network management system to send alerts to NetView for over a year.

While the current products "satisfy our needs nicely" for the moment, Blue Cross/Blue Shield will soon start evaluating whether it will need new or additional network management products as its interconnected LAN installations grow, Schultz said, adding that AT&T's Accumaster will be seriously considered by the company, which uses AT&T digital service units and leased lines. However, "we need to do a thorough cost-benefit analysis" before committing to anything, Schultz said.

In order to implement full, bidirectional flow of management information between current installations of NetView and Accumaster, users must purchase two software packages from IBM and install or upgrade to new releases of AT&T's Accumaster and SNA Management Application. The total cost from the IBM side is $65,000; the cost of upgrading the AT&T side, for users who already have the previous release of Accumaster but no SNA Management Application, is $90,000.

Love is a two-way street

The following items are needed in order to set up bidirectional information flow between IBM's NetView and AT&T's Accumaster Integrator:

From IBM:

- IBM's Network Carrier Interconnect Manager enables NetView to collect configuration information, as well as network alerts and alarms, from a carrier network management system.

While AT&T is the first carrier whose management system can be tapped in this way, IBM is in discussion with other carriers, an IBM spokeswoman said. Price: $15,000.

- IBM's Network Carrier Interconnect Agent, which is said to enable NetView to send information about its managed devices to a carrier management system. Price: $50,000.

Each of the above products is scheduled to ship in September, the company said.

From AT&T:

- The latest release of AT&T's SNA Management Application is said to enable Accumaster Integrator to exchange alerts and configuration information with either NetView or Systems Center, Inc.'s SNA management system, Net/Master.

A major enhancement of this release is the Remote Command Facility, which is said to allow NetView or Net/Master users or automated applications to invoke Accumaster tasks. For example, either could tell the system to initiate a test on a malfunctioning multiplexer. Earlier releases of SNA Management Application only allowed Accumaster to collect information about SNA systems from Net/Master.

The application works with AT&T's newly announced Accumaster Integrator Release 3. The core Accumaster product is priced at $120,000. The new version of AT&T's SNA Management Application is priced at $75,000.

Both products are scheduled for October availability. Users can upgrade from previous releases of Accumaster and SNA Management Application to the new ones for $25,000, according to AT&T.

ELISABETH HORWITT

National ISDN demonstration gets mixed reaction

BY ELLIS BOOKER
CW STAFF

CHICAGO — A symbolic "Golden Spike" long ago interconnected the nation's railroads and made the dream of transcontinental rail travel a reality. This fall, the nation's telecommunications carriers and equipment vendors hope to make history with what is being billed as the "The Golden Splice."

Officially known as Transcontinental ISDN Project 1992, or Trip '92, the weeklong event will show real-world applications and connectivity of Integrated Services Digital Network-1 (ISDN-1), an interoperable ISDN interface standard adopted last February by the industry's three largest switch manufacturers — AT&T, Northern Telecom, Inc. and Siemens Stromberg-Carlson.

Trip '92 will involve some 65 users showcasing 21 ISDN applications at 115 locations in the U.S. and at international sites. Details of Trip '92 were presented here two weeks ago at the Supercomm '92 trade show.

More broadly, however, Trip '92 organizers — the Corporation for Open Systems International, the North American ISDN User Forum and the National Institute of Standards and Technology (NIST) — said the event would be a landmark for showing that ISDN is real and capable of answering user needs.

"Users who jumped into ISDN a long time ago are going to take a wait-and-see approach," said Kenneth Zoline, president of Kenneth O. Zoline & Associates, a network systems consultancy in Chicago.

Even carrier representatives acknowledged that ISDN has taken longer to deliver than hoped.

"Birthing these things is a lot harder than it looks," a BellSouth Corp. executive said recently. Nevertheless, he said the country was on the "eve of volume deployment," pointing to Trip '92 as indicative of the trend.

Jeffrey N. Fritz, telecommunications engineer at the University of West Virginia in Morgantown and a Trip '92 participant, described the event as among the more significant things to happen to communications. "It signals national ISDN connectivity in North America," he said.

Since 1989, the university has had ISDN services supplied by C&P Telephone of West Virginia and currently has approximately 400 voice and data users on ISDN Basic Rate Interface (BRI) lines. An ISDN BRI contains two 64K bit/sec. "B" channels and one 16K bit/sec. signaling channel.

"Within the next six to nine months I think we could have 2,000 to 3,000 ISDN users on campus," Fritz predicted, noting that the cost of ISDN customer premises equipment is plummeting.

But according to Zoline, the connectivity being demonstrated by Trip '92 is only a beginning.

"ISDN-1 works in terms of the link-level transmission," he said. "We need to develop a whole set of standards for applications — like NetBIOS in the LAN arena."

Other observers said the educational Trip '92 demonstration will act as a seed for a future, commercial national ISDN network. Another potential benefit to end users will be the publication of a 200-page Trip '92 atlas detailing the location and type of ISDN demonstrations and the equipment and service provider for each component of the test.

Phone customers eager for features

More than 45% of residential and small business telephone customers would like ISDN-based features and services, according to a market study released recently by Bellcore.

There are approximately 86 million households with telephone service in the U.S. and another 8 million small business customers. The survey polled 1,307 residential customers and 645 small businesses and found the following:

- 38% of residential customers would like the ability to send messages without having to talk on the phone, and one-third would value the ability to place or receive two separate calls at the same time.
- 33% said they would like videoconferencing.
- Among small business respondents, 70% with four to 20 telephone lines rated their likely subscription to ISDN as moderate to high; users with one to three lines showed less interest (42%).

ELLIS BOOKER

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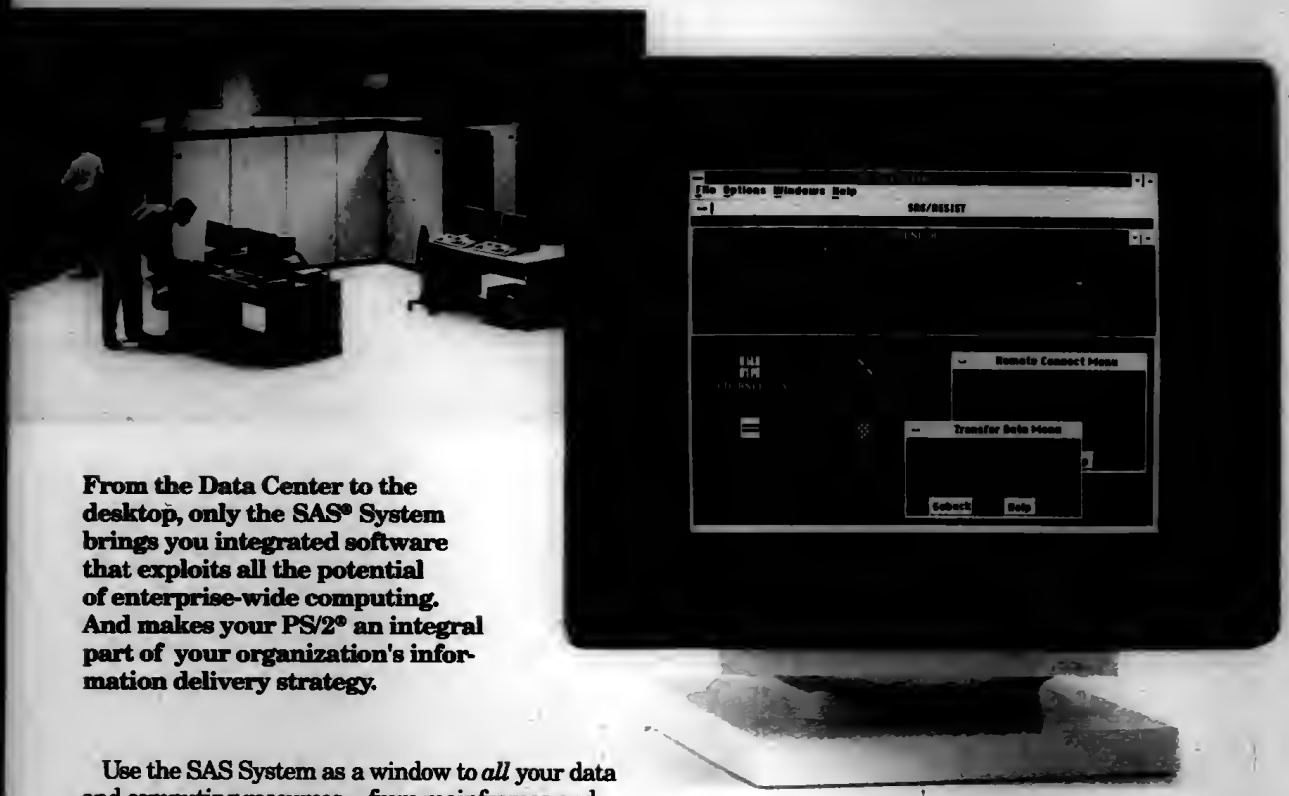

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Software leasing catching on

But progress is slow; customer ignorance, few vendor incentives cited

ANALYSIS

BY JOHANNA AMBROSIO
CW STAFF

Software leasing, after a long incubation period, is finally starting to make some headway into large corporations as an alternative financing scheme.

A practice that has been around since the mid-1980s, software leasing essentially allows a customer to purchase big-ticket software by borrowing money from a third-party lessor [CW, Sept. 3, 1990].

By some measures, including the growth in the number of customers and software vendors that are using the practice, software leasing is becoming a more accepted means of funding software purchases. The big reason is the recession, which has made this option more attractive to both users and software vendors alike.

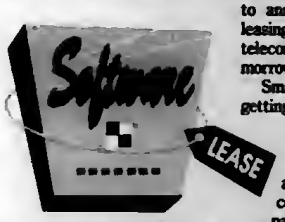
According to customers, leasing allows them to use money other than operating capital to purchase software, and it also allows them to end-run corporate rules on acquiring expensive software.

Not 100% successful

Nevertheless, it is still too early to characterize the concept as an all-out success. Problems have included a lack of awareness among customers that this option is available and, until very recently, not enough incentive for software vendors to offer it.

"It's growing and things are happening, but the real significant impact will be two or three years down the road," said Marc Carpenter, president of Software Lease Finance Group in Sacramento, Calif. The firm is a leasing outfit that works with banks to fund users' large software purchases.

Although figures about the total software leasing industry are not available, early signs are encouraging, participants said. Howard Smith, president of



Software Leasing Corp. in Beverly Hills, Calif., said his company's revenue grew by 300% last year, and he expects the same to happen this year. Carpenter said his firm will likely double its revenue this year.

Other players include Meridian Software Funding, a division of Meridian Leasing Corp. in Deerfield, Ill.; and IBM Credit Corp., which, a spokesman said, will arrange leasing for IBM software only.

New vendors are looking to enter the fray. The CIT Group in Livingston, N.J., which has funded hardware leases but has not traditionally funded software-only deals, will decide the question soon, said Madeline Bayliss-Allen, senior vice president of national accounts.

Healthy client base

Another indicator is the number of customers using the practice. Smith said his company has more than 100 end-user clients, including Wells Fargo, The New York Times Co. and Citibank NA. David Smoot, president of Tomahawk, Inc., a Northbrook, Ill., leasing firm, said he expects to announce a large software leasing contract with a major telecommunications provider tomorrow.

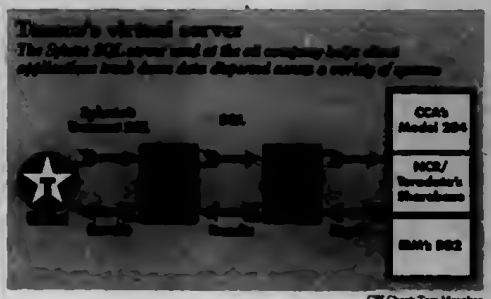
Smith also said he has been getting more calls from large corporations that have never before used software leasing, including an insurance concern and a consumer electronics company.

LaMode, Inc., an apparel manufacturer in Los Angeles, has been leasing software for about five years.

"We were much smaller when we began leasing," said Sherwood Sterling, executive vice president at LaMode. "It allowed us to use money other than our internal operating funds."

Another customer, who did not want to be named, said, "It gives me flexibility around the corporate red tape. To purchase software, I would have to have it approved, and that process can take up to three months. By using leasing, I can stay within an

Continued on page 74



CW Chart: Tom Monahan

Texaco finds black gold with virtual data server

Custom-built server allows consistent data access

ON SITE

BY JEAN S. BOZMAN
CW STAFF

SAN JOSE, Calif. — What if you were surrounded by row after row of rotating disk drives holding transaction data — and had no way to quickly locate any particular piece of that data for decision-support applications?

That was the challenge facing Texaco, Inc. two years ago, when a small team of data managers from the oil giant's Houston-based Scientific Systems Management (SSM) group wanted to build a consistent data-access method. The scientific data from oil exploration teams was stored separately from the data used by Texaco's engineering groups.

That problem was solved by creating a unique, custom-built "virtual data server" (VDS) that combines off-the-shelf database software with homegrown gateways.

"We wanted to track all data from an oil field, from the time it was discovered until the time came to close the field up," Tom Peters, manager of the nine-person SSM data group, said at a recent Sybase, Inc. user group meeting. "We wanted seamless access to multiple databases [and needed] a tool that could be used by applications to access data throughout Texaco."

Texaco used a Sybase SQL Server relational database running on a Unix-based Sun Microsystems, Inc. Sun 670 server as the basis for its virtual server.

The two-processor server has 128M bytes of main memory and 9.3G bytes of storage memory; it is slated to be upgraded to

Continued on page 74

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Imaging cures hospital's paper woes

Memorial Sloan-Kettering saving more than $140K/year with a healthy dose of document imaging

BY THOMAS HOFFMAN
CW STAFF

NEW YORK — Memorial Sloan-Kettering Cancer Center (MSK) is renowned as the world's largest cancer treatment facility, but its pioneering use of document imaging systems has also led the hospital to the forefront as one of the top information technology users in the health care industry.

MSK saw the need to deploy document imaging systems as far back as 1988, when the hospital was being overrun with administrative paperwork. MSK, which admits more than 18,000 patients each year, processes more than 1 million pages of medical claims, bills and other administrative paperwork annually.

Strategic edge

In addition to reducing the amount of administrative paperwork handled here, the 565-bed hospital's imaging system will eventually process the facility's 7.2 million pages of medical records each year. "We saw imaging as a strategic technology for the future," said John S. McBride, director of patient accounts, who oversaw the imaging project.

One of the challenges MSK faced with designing the project was a lack of role models. No other hospital had installed an imaging system to process patient bills or any other administrative functions. So in early 1988, McBride and his staff turned to banks and insurance companies to see how they were using imaging systems to unclog the paper bottlenecks in their industries. "The philosophy at Memorial is that the business side of health care is no different than other businesses," McBride explained.

After completing its research, MSK issued a request for proposal (RFP) to imaging vendors in June 1988. The RFP requirements included automatic indexing, folder management work flow functions, computer output to laser disc ability, remote access among three major campuses, controlled and secured access to the system and an interface to current systems at MSK and at the hospital's Lyndhurst, N.J., data center.

After nine months of deliberation, the hospital opted for a FileNet Corp. solution.

The system — made up of a FileNet Optical Scanning and Retrieval (OSAR) GT-90 jukebox housing 90 12-in. optical discs (with 32 active discs), 44 clustered FileNet Unix workstations, three FileNet OSAR servers and a Computer Output To Laser Disc (COLD) device — was first used to scan billing and claims documents from Medicare, Blue Cross/Blue Shield and other commercial insurers, as well as inpatient and outpatient payment records.

The system, phased in over a two-year period beginning October 1989, sends and retrieves information between administrative offices in Manhattan and the Lyndhurst data center using the COLD system, with connections over T1 and microwave links. Connections to the IBM 3090 mainframe in Lyndhurst are backed up by an Ethernet fiber-optic link. American Management Systems, Inc., a Vienna, Va.-based systems integrator, developed the retrieval and routing module for MSK, according to McBride.

McBride said the imaging system enables MSK administrators to react to medical claims in a more timely manner. Prior to the FileNet system, MSK stored its own patient bills on microfiche, while microfilm was used to store third-party insurance patient bills.

It often took 24 hours or longer to access these documents. Using the imaging system, bills can now be queued up and printed within 30 seconds.

Productivity gains

All mail sent to the hospital for patient accounts now comes into a central mail area, where it is scanned and indexed into the FileNet system. In addition to productivity gains of 18% to 20%, the imaging system has yielded big dollar savings for MSK, McBride said.

He said the hospital is saving $85,000 per year in media costs once associated with the paper and microfiche copying that have since been eliminated, $55,000 annually in microfilm costs and 2,000 sq ft of floor space once occupied by file cabinets housing 90,000 file folders. MSK also eliminated 11 staff positions supporting file library functions for paper and microfiche.

The system paid for itself in 22 months, according to McBride.

Now that all of its patient account documents are image-based, MSK is in the process of image-enabling all of its medical records. So far, 2.2 million pages of medical records are image-based.

Next month, MSK will deploy a signature verification system that will allow insurance carrier-to-patient refund checks to be processed overnight.

ON SITE

Memorial Sloan-Kettering Cancer Center
New York

- **Challenge:** To replace slow and expensive paper, microfiche and microfilm-based patient records with an optical disc-based imaging system.
- **Technology:** FileNet's Unix-based imaging system.
- **Expected result:** Improved productivity by 18% to 20%, saved 2,000 sq ft in floor space and realized savings on microfiche and microfilm storage costs.

CA to port to HP/UX

BY MARK HALPER
CW STAFF

PALO ALTO, Calif. — Computer Associates International, Inc. will make a number of its large host programs available by early next year for the Unix-based HP/9000 mainframe-class computer, according to Hewlett-Packard Co.

At the same time, HP and CA said they are offering a promotion through the end of this year that will allow users to run CA's Unicenter integrated system management software on HP/9000 systems on a 120-day trial basis.

CA is porting its CA-IDMS and CA-Datacom database programs, the CA-ADS and CA-Ideal fourth-generation languages for those two programs and its Masterpiece financial accounting program over to the HP/UX operating system.

THE MOVE marks the first time Computer Associates will have made any of those programs available on a Unix platform. Ports to other Unix platforms are planned.

The move marks the first time CA will have made any of those programs available on a Unix platform, said Kurt Seibert, vice president of strategic business planning at CA. Ports to other Unix platforms are planned.

Intended for Series 800

Bernard Guidon, general manager of HP's General Systems Division, said the forthcoming HP/UX versions of CA's software will run on lower class HP/9000 machines. But because of pricing and performance, they are intended for use with the HP/9000 Series 800 Business Server introduced last month and scheduled for availability late this year, according to Guidon.

HP's CA software agreement follows a stream of deals similar to those HP has entered with The Dun & Bradstreet Corp., SAP AG, Cincom Systems, Inc. and others to make mainframe-class software available on HP's Unix minicomputers.

The CA programs will be the first of the bunch intended specifically for the top-of-the-line Series 800 Business Server, according to HP.

Leasing catching on

CONTINUED FROM PAGE 73

approved budget, get the software I need quickly and speed up the whole process."

Sterling said that if the software leasing industry is not yet a powerhouse, "it's probably because the software vendors are not pushing it and no one knows that this is available."

That, too, is changing. From 1987 to 1989, Smith said, his company worked with only one vendor — Management Science America Corp., for which Smith used to work. Now Software Leasing represents more than 30 software houses, including Candle Corp., BMC Software, Inc. and Sterling Software, Inc.

"I basically go to the software company and show their sales force how to use this as a tool to close sales," Smith said.

Texaco finds black gold with server

CONTINUED FROM PAGE 73

a four-processor machine next month. End users access VDS from networked Intel Corp. 80386-based personal computers using Sybase DBLib client software.

"The SQL Server stored the logical data model for Texaco's data," Peters explained. "In theory, it knows where every piece of data is stored." The SSM team built a "parser" to translate an end user's Sybase-specific Transact SQL queries into a form that the target database could understand. Now, end-user SQL queries will access all three gateways through VDS "without the application knowing how to get there," Peters said.

Database programmers at Texaco had to forge custom gateways between VDS and two of the target databases — Computer Corporation of America's Model 204 and NCR Corp.'s ShareBase. Texaco purchased the Sybase Open Server and Sybase's DB2 Net Gateway to access IBM's DB2.

In all, there were 55G bytes of data in the target databases: 28.6G bytes in Model 204, 19.2G bytes in DB2 and 7.2G bytes in ShareBase. The ShareBase and DB2 links are up and running; the Model 204 link is scheduled to be in place by August.

Limited access

Once accessed, the Texaco data selected from the target databases can be "joined" and returned to an end user's PC screen.

To avoid security problems with the Texaco-proprietary data, users have "read" rather than "write" access to the target databases, Peters said. However, he added, "in theory, there's no reason why VDS cannot be used to do updates."

After piloting the VDS project with a small group of end users, Peters said he expects to have several hundred users accessing data through Texaco's virtual data server by 1995. By that time, similar servers may be placed in other cities with Texaco operations, including New Orleans and Denver.

Sybase's SQLSolutions Division in Burlington, Mass., is working on a similar server technology that will access multiple foreign databases, Texaco systems analyst Gary G. Turpin said. That product, code-named Multi Server, will translate Sybase's Transact SQL query language into SQL that can be understood by the target databases, Sybase managers confirmed last week.

COMMENTARY

Frank H. Dodge

Future-proof technology

Ten years ago, we application developers thought the porting process was an exception, a onetime effort. Today, we know that porting will be a continuous way of life for software vendors and IS professionals because platforms are constantly changing.

Although this issue bears directly on the ability of software vendors to compete and be profitable, it is also of crucial interest to anyone developing large, enterprisewide applications.

The porting process was always much more expensive, more problematic and took much longer than anyone expected. Bitter experience taught us that it would take teams of 15 to 20 programmers from two to three years to port a set of mainframe VSAM applications to IMS, IDMS or DEC platforms. The result was very late product availability, significant cost overruns and unhappy customers.

Takes time

Today the situation facing software developers is even more complex and volatile. In spite of two decades of advances in application development methods and tools, it still takes longer to design and develop major applications than it does for new platforms to be announced and become market standards.

The complexity of today's platform alternatives makes what mainframe developers faced 20 years ago appear simple. Instead of just operating system and database alternatives, those who plan to develop client/server applications must choose between Microsoft Windows, OSF/Motif or other GUIs; a number of popular SQL databases; Novell, Banyan or TCP/IP network protocols; and Unix, OS/2 or Microsoft NT server operating systems.

So what are developers to do?

I believe the answer comes from using a layered architecture. This approach is illustrated by the multilayered OSI model for network software. By

Continued on page 76

Class libraries ease development

However, with acknowledged benefits come concerns for the future

BY GARRY RAY
CW STAFF

As developers move toward object-oriented programming, they are increasingly turning to prepackaged class libraries to reduce programming efforts and to hedge against today's growing number of platform alternatives. However, developers and vendors both agree that their concerns about class library standards and compatibility have yet to be addressed.

Class libraries — which are popularly represented by products such as Borland International, Inc.'s Application Framework and Microsoft Corp.'s Foundation Classes — typically include a set of skeletal functions around which larger C language programs can be built.

Alternately, class libraries can be specific to a discipline, such as actuarial insurance or astrophysics, or to a particular set of functions, such as SQL database access or high-resolution graphics. No matter what the domain of the library, it provides a set of generic building blocks that can be used to create or enhance an application being written in C++.

The benefit of these libraries is substantial, according to users and programming consultants.

Pros and cons of class libraries

Benefits

- **Prepackaged application functions such as generic menus and screens reduce development time.**
- **Multiplatform class libraries make it easier to port applications.**

Problems

- **Current absence of class library standards makes it difficult to merge libraries from different vendors.**
- **Writing applications to a particular class library effectively weds the developer to that library.**

CW Chart: Michael Siggins

Citing a proprietary class library that reduced the development costs of an insurance application by more than 70%, Anchorage, Ala.-based developer and consultant Nancy Nicholaisen said, "Real people have a real opportunity to whack the heck out of a [development] budget that nobody likes in the first place."

However, such benefits are not free, according to David Basilia, vice president of optical testing firm Phase Shift Technology, Inc. in Tucson, Ariz. "It's not magic, and you still have to do the [development] work," he said.

Basilia turned to Framingham, Mass.-based Liant Software Corp.'s C++/Views primarily to shield a team of optical engineers from the programming intricacies of Microsoft's Windows. The library, he said, "forces you into an environment that doesn't let you go astray."

Class libraries like C++/Views join a growing list of cross-platform tools from third parties such as XVT Software, Inc. in Boulder, Colo., and Imagesoft, Inc. in Port Washington, N.Y.

Concerns about the number of platforms they must support have increasingly driven developers to multiplatform class libraries, which typically allow applications to be written once and subsequently recompiled and run on OSF/Motif, Windows, OS/2 and Macintosh platforms.

"The consensus that applications and tools need to be portable is more than I've seen in the last 10 or 15 years," Imagesoft President Eddie Currie remarked.

As recently as last week, Apple Computer, Inc. and Symantec Corp., both based in Cupertino, Calif., announced plans to jointly develop a class library called Bedrock for the Macintosh and Windows environments.

The product, expected to ship in the first half of 1993, will eventually support Unix, OS/2 and Windows New Technology, according to company officials.

Still, not everyone is sanguine about class libraries, and users and vendors both express concern that some problems will need to be solved.

"I am concerned that [libraries] are compatible and compliant with whatever standards" may exist in the future, said Hans Herman, director of advanced computer-aided software engineering at Unisys Corp. in Malvern, Pa.

Easel expands product line; updates Workbench

BY GARRY RAY
CW STAFF

BOSTON — The client/server tools war heated up recently as Easel Corp. unveiled a slew of partnerships, strategies and products at its annual user conference.

The announcements add a number of new database capabilities to the company's flagship Easel Workbench, a client/server application development tool.

Most prominently, the company added Easel hooks to a variety of SQL databases and a module that provides transaction processing to Easel applications.

Variety of improvements

Burlington, Mass.-based Easel's Transaction Server Toolkit provides static SQL access to IBM's OS/2 Database Manager. Static SQL programs are executed on a database transaction server, reducing network traffic and improving overall execution of client applications, according to Easel officials. Access to other IBM databases, including DB2, SQL/DS and SQL/400, is available in conjunction with IBM's Distributed Database Connection Services/2, according to the company.

Easel officials said the tool will be included with the already shipping $11,900 Easel Workbench beginning in September.

Easel applications will also gain access to an array of databases with the EDA/SQL Option, company officials said.

The $995 tool, slated to be delivered in September, works with New York-based Information Builders, Inc.'s EDA/Link software to provide access to more than 40 databases, according to the company.

Supported databases include Oracle Corp.'s Oracle; IBM's DB2, SQL/DS and SQL/400; and Digital Equipment Corp.'s Ultrix/SQL.

Also announced were 11 partnerships with systems integrators and software companies, including Oracle, Microsoft Corp., Sybase, Inc., Information Builders, Techgnosis, Inc. and Bachman Information Systems, Inc.

The partnerships were said to illustrate growing support for Easel in the vendor community.

> THE PARTNERSHIPS were said to illustrate growing support for Easel in the vendor community.

"All of these things indicate [that Easel has] an awareness that what they had before was not enough" to contend with previously mounting criticism of the company's product line, said Andrew Mahon, a senior analyst at New Science Associates, Inc., a technology consulting firm in Westport, Conn.

The announcements "show that there will be an upward path" to the ongoing trend toward client/server computing, Mahon said.

Netron ships graphical PC tools

BY KIM S. NASH
CW STAFF

TORONTO — Netron, Inc. is now shipping two personal computer-based development tools designed to help programmers build full-blown graphical PC applications.

The tools were unveiled at a Netron user conference held here two weeks ago. A joint marketing agreement with IBM Canada was also announced.

The company, whose primary product family is Netron/Cap, a line of PC-based graphical application builders, said the new development tools are aimed at creating "switch portability" between IBM's OS/2 Presentation Manager (PM) and Microsoft Corp. Windows applications.

Netron/Client for Windows and Netron/Client for PM, which generate Cobol code, were designed to let programmers use

Continued on page 76

Borland to market tools

SCOTTS VALLEY, Calif. — In August, Borland International, Inc. will begin marketing under its own name two development tools — Brief and Sourcerer's Apprentice — that it acquired recently from a New England software house.

While Borland plans to continue to develop the two lines for future stand-alone releases, it also plans to embed at least some features of both programs into its Integrated Development Environment, said David Intersimone, director of developer relations for Borland's Languages Business Unit.

However, Borland has not decided whether to offer dBrief, a version of Brief tailored for use by database developers. Intersimone said Borland's Applications Business Unit will make that decision.

Borland completed its acquisition of Brief, a programmer's editor; Sourcerer's Apprentice, a version control program; and dBrief from Hingham, Mass.-based Software Developer's Co. (SDC), late last month for $6.7 million.

Borland will offer Brief and Sourcerer's Apprentice at the same prices charged by SDC, starting Aug. 1. It will price multiple-user versions of Brief for DOS or IBM's OS/2 at $249, and multiple-user versions of Sourcerer's Apprentice at $499.

Netron ships graphical PC-based tools

CONTINUED FROM PAGE 75

the same specifications to build equivalent programs for both environments. Developers can just "flip a switch" to choose a target platform, a company spokesman said.

At least one early user was pleased with Netron's direction. Dun & Bradstreet Canada, a division of Dun & Bradstreet Software, bought a prerelease version of the PM tool to help downsize a large customer service application from a CICS mainframe configuration to a local-area network composed of IBM Personal System/2 boxes.

But there is a hitch: The company wanted to hold onto its Cobol programmers.

"When we learned that [Netron] could support Presentation Manager from Cobol, we were sold," said David Ravenscroft, manager of business systems development.

THE NEW DEVELOPMENT tools are aimed at creating "switch portability" between IBM's OS/2 Presentation Manager and Microsoft Corp. Windows applications.

D&B Canada plans to expand its use of the Netron products to revamp on-line credit reporting systems at customer sites next year.

The Netron/Client products, which are priced at $9,000 per copy for new users, were originally announced three months ago and have begun shipping in volume [CW, March 9].

Meanwhile, a marketing pact with IBM Canada calls for IBM to market and take orders for Netron/Cap for AIX and related support services.

The product generates native Cobol for IBM's RISC System/6000 workstations and servers. Netron will service and support graphical user interface builders sold by IBM.

Other plans outlined by Netron at the user conference included Netron/Client for OSF/Motif and for Digital Equipment Corp.'s Alpha.

Future-proof

CONTINUED FROM PAGE 75

applying layered concepts to typical enterprise applications, each layer then only needs to know about and communicate with adjacent program layers. This revolutionary approach dramatically simplifies application porting to multiple platforms.

The key to implementing a layered architecture is to break the application into discrete modules or blocks. Each block carries out a particular physical function unique to that block, such as user interface, data management, network function or applications function. Each discrete block is then encapsulated by specifically defining how the blocks will interface with each other.

Most significantly for developers, any one of the blocks can be changed or even replaced without changing the rest of the application.

In contrast to mainframe applications, where scores of programmers took two to three years to port applications from one platform to another, so-called future-proof architecture allows developers to move to new platforms with minimum effort.

There are many benefits because multiple versions of the application will be available in a timely manner and will be synchronized with each other. This means that a large multisite organization that chooses to run popular but different platforms at various locations can work with the identical set of application software in each location.

Equally important, as new platforms, such as object-oriented databases, come to market, future-proofed applications can be ported to the new platform by changing only the DBMS block — the others remain intact and unaffected.

Although the benefits of future-proofing software are numerous and obvious, a major investment of resources is required because there is no way to evolve old mainframe applications to this type of architecture.

Noted technology consultant George Schussel, president of Digital Consulting, says, "For maximum advantage from the added power, functionality and richness of downsized client/server approaches, you'll need to trash your old applications and rebuild them from scratch."

This is why future-proofed, object-oriented application packages are mostly coming from newer software vendors that have little stake in old applications and maintenance revenue.

Dodge is president and CEO of The Dodge Group.

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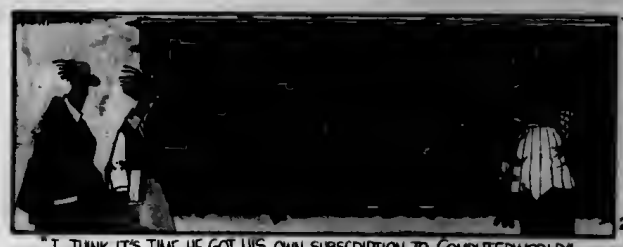

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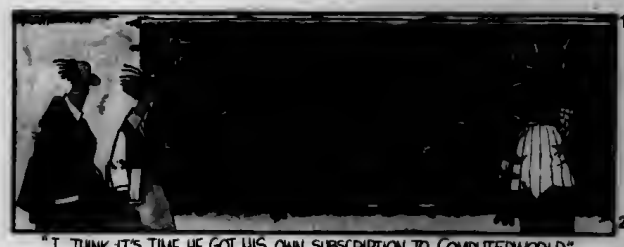

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EXECUTIVE REPORT

COPING WITH DISASTER

Lessons from Hell

Natural disasters need not be disastrous for IS. Learn from companies that emerged from floods, fire, earthquakes smarter than when they started.

Michael Abramson

CBOT's Rutz: *Disaster recovery plans were enhanced by a helicopter when downtown Chicago flooded. See story page 78.*

BY JULIA KING

Hindsight, everyone knows, is always 20/20. Sadly, it's often only *after* disaster strikes that recovery plans are made. But even then, information systems managers may find it tough to win approval and funding for safety plans, experts say.

"Time and again, disaster recovery comes up as an area where IS doesn't get strong support from management," notes Al Froehlich, a disaster recovery specialist at Nolan, Norton & Co. in Chicago.

Although business heads expect IS to have a disaster recovery plan in place, many simply don't want to pay, he says. "IS people are coming to the boardroom with million-dollar disaster recovery plans that are being summarily dismissed," Froehlich says.

Blame human nature, says Julie Schwartz, associate director at Dataquest/Ledgeway, the Framingham, Mass.-based market research firm. "I don't lock my house until I get robbed, and then I bolt my doors," she says. "It's the same with disaster recovery — [companies] don't want to put money in it because it is a gamble. But if they get burned once, they don't want to get burned again."

Stuart Johnson, an editor at *Disaster Recovery Journal*, a quarterly magazine published in St. Louis, agrees. Contingency planning means spending capital that does not bring in income, he says. Bottom line: Disaster planning can be expensive insurance.

Even so, Johnson predicts that the recent Chicago flood — which he calls the largest business disaster ever — will open some corporate eyes and show that contingency planning is a vital part of business.

"Companies that didn't have plans developed in Chicago are going to have a much harder time staying in business in the next year or two," Johnson says. "I imagine some of them will fail."

Analysts agree that spending and interest in disaster planning are growing, but they can offer few hard numbers. They say larger companies are more likely to have disaster plans and funding than smaller firms, but the adequacy of both is another story. For instance, a company might have a good plan for recovering critical systems applications. But it could lack an overall business plan to handle second-day issues that are less data-intensive, such as having systems available for human resources or customer service.

Nonetheless, analysts and IS managers say things are improving. Some have learned the hard way — by suffering through power outages, fires, earthquakes and other disasters.

Interestingly, the growing popularity of distributed computing has fueled interest, Schwartz says. "Environments are getting so complex," she says, "that people realize they need help."

While spending on hot sites is still rising, she says, more money is being spent on planning.

"Of course, companies with mainframes will always need mainframe hot sites," Schwartz says. "But for lots of companies, what they need are business recovery centers, instead — they need a place to put people with PCs and networks and a minicomputer server. It is a lot less expensive than going to a mainframe hot site."

Also fueling interest is a growing number of government mandates for banking, insurance and health care firms and others to have better plans.

In the following pages, managers from six companies share what went right — and wrong — with their disaster recovery plans, and how they made changes after enduring fire, floods, earthquakes, hurricanes and power outages. ●

King is a free-lance technology writer based in Ridley Park, Pa.

Coping with disaster

KEY POINTS

▶Few companies fully test their disaster recovery plans. Even fewer consider non-IS factors, such as closed roads and entire communities being blacked out.

▶Dozens of new disaster-related products and services have hit the market in recent months. See story page 83.

▶A new breed of disaster-ready buildings and data centers are attracting IS chiefs. See story page 82.

▶User tales from Fiduciary Trust Co. International; Robert Bosch Corp.; Los Angeles County Board of Supervisors; McKenna, Storer, Rowe, White & Farrug; Bechtel Corp.; and Chicago Board of Trade Clearing Corp. See stories beginning on page 78.

▶FAST FACT: To rebuild 20M bytes of engineering data takes an average of 42 days and costs $90,000, according to the National Computer Security Association.

QUOTABLE:

"What we hadn't counted on was losing the entire community."

Gene Ice
Robert Bosch Corp.

Traders wheel, deal, soar to keep Chicago commodities exchange humming in flood

Monday, April 13, 1992. Roger Rutz, president of the Chicago Board of Trade Clearing Corp. (CBOT), was driving to work at 6:15 a.m. when he heard a radio report about a broken water main in the city's downtown business district. By 9:15 a.m., when CBOT directors announced that agricultural markets would not open, Rutz knew something was wrong.

Minutes later, the problem became horribly clear: The early morning water main break was actually the Chicago River. The river had taken a disastrous turn through 141 West Jackson St., headquarters for both the CBOT, which processes trade data, and 80 other member brokerages. Unfortunately, the flooded building housed the clearing corporation's data center, which processes and pays all CBOT transactions.

At 9:20 a.m., Rutz declared a disaster. By noon, the building was one of hundreds in the Loop without electricity. Board workers at the site joined 200,000 people evacuated from the area.

Fortunately, CBOT had a disaster recovery plan, tested faithfully every three months since its adoption in 1989. So about half of the 140-member CBOT staff packed backup tapes and traveled approximately 35 miles to a Northbrook, Ill., hot site operated by Sungard Recovery Services, Inc.

By 3:30 p.m., just six hours after Rutz officially declared the disaster, CBOT was back in business at temporary quarters.

The corporation's troubles, however, were far from over. The worst problems surfaced a day and a half later. Power was partially restored to 141 West Jackson St., allowing the CBOT to open trading for two hours. Normally, the exchange processes between 500,000 and 600,000 futures and options transactions a day, with an underlying value of between $60 billion and $70 billion.

But member firms and the clearing corporation were still shut out from the building. The first dilemma was finding places for brokers from 80 companies to electronically enter trades for processing.

So the 100-member information systems group arranged for 30 terminals to be set up at the Chicago Mercantile Exchange, about five blocks away. These were linked via modem to the temporary mainframe facilities in Northbrook.

Brokers also used terminals at 35 other firms unaffected by the flood to gain dial-in access to CBOT's data center. Finally, when partial electricity was restored to the CBOT building, terminals in the exchange's staff offices on the 14th floor were converted to trading workstations.

Soon another problem cropped up: insufficient printing capacity at the Northbrook hot site. The disaster recovery plan allowed for the printing of partial information reports to trading members, Rutz explains.

But because the exchange had managed to fully open trading, members needed their regular daily reports — in all, about 4,000 pounds of documents produced by four laser printers at the corporate data center.

Rutz's solution: Charter helicopters to airlift in reports produced by a single laser printer in Northbrook. When bad weather prevented choppers from landing in Chicago, Rutz chartered a plane to fly in data communications equipment from Computerm, Inc. in Pittsburgh. This, he says, proved to be a turning point in the recovery.

Using the channel extension gear, data generated at the hot site could be printed remotely at the CBOT's downtown data center, which had partial power by Thursday afternoon.

"We knew we had to fix the paper distribution problem," Rutz recalls, "because time is everything with this paper." Soon, data center printers were plugged into the Computerm boxes and the printers started flying. "It was like the last quarter of the Super Bowl and throwing the winning touchdown," Rutz says.

Business as usual

For the 14 days that the CBOT operated from the Northbrook center, member firms received regular reports on time. But unlike some Super Bowl heroes, Rutz didn't slow down and head for Disney World. Instead, he calculated the cost of what he considers "very successful, on-the-fly solutions" to problems that were impossible to anticipate.

While Rutz spent $500,000 — including $70,000 on chartered helicopters, airplanes and vans to shuttle IS workers between Chicago and Northbrook — he says he believes it was definitely the right thing to do, and he would do it again.

"Normally, I'm a very frugal person," he says. "But when you have a crisis, you have to get the job done. The cost of chartering a plane or some other solution is minuscule compared to the value of business that can be lost." That cost can total "hundreds of millions of dollars" for just a single day, according to Rutz.

The greatest lesson learned from the disaster has to do with testing, Rutz says.

"We had tested our plan plenty with ourselves, but we never tested with our customers," he says. "We learned that if you think you have tested, you really haven't until you've run your entire organization from a completely different location."

JULIA KING

Lessons from hell

IS managers who have survived disasters offer the following advice:

- **Think beyond your data center or building. Roads and airports often close in disasters, so it's wise to map out alternate routes to hot sites.**
- **Test your recovery plan internally and with customers BEFORE disaster strikes.**
- **Get a dedicated generator or uninterruptible power supply. They are costly but cheaper than a big blackout.**
- **Be alert to follow-on problems. After an earthquake or hurricane, for instance, power quality may be erratic.**
- **Store back-up disks and hard copy as far from your site as possible.**
- **Maintain current lists of telephone numbers for IS staffers and key contacts in facilities, transportation and top management.**
- **Instruct IS staff to keep you posted of their whereabouts during and after a disaster. Issue beepers to key personnel.**
- **Make sure staffers know how to contact the hot site or service vendor.**
- **Take a close look at your present data center. If it's older, poorly wired, or otherwise disaster-prone, consider moving.**

CW Chart: Janell Genovese

Hugo huffs, puffs, blows Bosch data center down — but not out

Remember Hurricane Hugo? Robert Bosch Corp. would like to forget it.

In September 1989, the storm wiped out the data center at the Charleston, S.C.-based firm, a $750 million supplier of fuel injectors, spark plugs and other engine parts to top automakers. Damage included a collapsed roof, a flooded data center, a power blackout and a dead private branch exchange (PBX).

According to plan, information systems manager Gene Ice says, IS operations were moved to a Niles, Ohio, hot site run by CSC Compusource, Inc. Twelve hours later, Bosch's critical just-in-time (JIT) applications and other critical functions were fully operational.

But back in Charleston, where JIT shipments are dispatched from a computer-controlled warehouse located about 10 minutes from the data center, neither telephone service nor electricity had been restored.

"Our plan was designed around the fact that our data processing operations would be wiped out and we would go to a hot site," Ice explains. "What we hadn't counted on was losing the entire community."

As it turned out, electricity was the biggest problem. "Without power, we had no way of bringing up terminals at the warehouse," Ice says.

Because of citywide demand for emergency equipment, several days passed before Bosch got electrical generators to power its warehouse. Even then, power surges and spikes caused by improperly installed generators slowed work. It also disabled computer connections between the hot site and Charleston.

"One of the lessons we learned," Ice says, "is that computer operations require a dedicated generator." Another is the importance of dedicated telephone lines that bypass the PBX, which was killed when the storm first hit.

Other tips offered by Ice: Have plenty of beepers available for IS employees and other key managers during the disaster and don't splice bus and tag cables under your computer room floor. When wet, these cables are more likely to short out than longer single cables.

Backup key

After 11 days at the hot site, Bosch returned to its regular data center, where a replacement IBM 3083 had been installed. Not once during that period did the company miss a JIT delivery, Ice says, a feat possible only because of the backup site.

Looking back, Ice says he credits repeated drills by IS employees with bringing up the hot site speedily.

In contrast, he says, it was luck that backup tapes arrived quickly at the hot site after the storm. Earlier that week, Ice had dispatched a technician to Atlanta with a full set of backup tapes. At the time, no one knew the airports would be closed by the hurricane, preventing tapes from being shipped.

JULIA KING

When earthquakes hit, disaster recovery plans register 10 on Richter scale

Bechtel Corp.'s information systems department was processing the construction giant's 15,000-employee payroll when the great San Francisco earthquake of Oct. 17, 1989, thundered through its three-story data center a few minutes after 5 p.m. The quake ripped out stairwells and walls and sent mainframes scuttling across the main computer room.

"The lights were out and all the tape racks had pulled away, spilling tapes all over the place," recalls George Conniff, IS manager at the time of the disaster. "We had just executed the payroll, but we hadn't yet received confirmation from Bank of America, so we knew we were either in the best or worst of circumstances." (The payroll did go through.)

Luckily, by the time the disaster hit, many IS employees had already left for the day. Some had made it across the Bay Bridge, which the quake shut down. Those left behind gathered up disaster recovery manuals and headed for the company's adjacent headquarters building where damage was minimal.

The first order of business was to alert Bechtel's disaster contractor, Sungard Recovery Services, Inc. Then, backup tapes were dispatched from offsite storage about 25 miles away in Milpitas, Calif., to Sungard's data center outside of Philadelphia.

Too close for comfort

One of the first lessons learned, says Conniff, now a project manager at Bechtel Power Corp. in Gaithersburg, Md., was that Milpitas was not far enough from the quake. "People there were concerned about their own safety," he says. "There was a lack of commitment about shipping our tapes, so we had to send our own people."

Bechtel workers who made it out of the building before the quake went directly to Sacramento. There, they chartered a plane and headed across the country for Sungard's Pennsylvania facility. The same night, IS employees still stranded in the city chartered a ferry to cross the San Francisco Bay because the bridges had been closed.

The next day, workers traveled by car to Milpitas, picked up the tapes, then headed for Sacramento. They, too, chartered a plane to take them to the backup site.

Conniff and others spent the day surveying the damage at the data center, located in a building Conniff describes as "old, rigid and not earthquake-proofed." A crew was able to reposition the mainframes. When electrical power was restored, IBM technicians were on hand to run diagnostic tests. "Much to the surprise of everyone, everything was fine," Conniff says. "By 7 that evening, we were up and running with no problems."

But just a few hours later, disaster struck again. Without warning, the data center was kicked off-line by Pacific Gas & Electric Co. "It happened so abruptly that we had more damage from being kicked off-line than from the earthquake," Conniff says.

Workers spent the weekend doing what several technicians considered a long shot — setting up to operate the data center remotely from an adjacent building.

To their surprise, the plan worked. For the next several weeks, IS operated from the temporary site. Infrequent trips were made to change tapes at the old data center, which had been declared unsafe. During this time, Sungard's facility served as a backup site.

Two months later, the data center was moved permanently to a newer Bank of America facility that was rated to withstand strong quakes and equipped with diesel generators.

Looking back, Conniff says his greatest lesson was to relocate backup tapes "much farther from the seismic zone." Now they are kept in Sacramento, about 85 miles away, far from active fault lines. Since the quake, Bechtel has also changed the configuration of its IBM 4270 communications controller to accommodate a direct connection to terminals in San Francisco and at Sungard's facilities.

In the two years between the time Bechtel's disaster recovery plan had last been updated and the 1989 quake, "we had become much more dependent on a wide network for our operations," Conniff says. Under the new plan, emergency modems connect the site to Philadelphia rather than make a direct connection through the network.

Other lessons learned: Keep current lists of all employees' telephone numbers, and have employees call in their whereabouts after a disaster occurs.

JULIA KING

L.A. support system up in smoke

Alan Levenson

Los Angeles County's Stoker *relaxes in her Jacuzzi before heading back into battle to regain funding for the 911 support system that was lost in a data center fire*

Peggy Stoker had won. After two years of intense lobbying, the Los Angeles County Board of Supervisors finally approved funding for a new 911 support system last June. The new computer would track data generated by the nation's largest emergency medical service (EMS).

Stoker, information systems chief and head of the trauma and EMS system, knew the need was there: The county handles about 600,000 emergency calls and 14,000 trauma patients each year.

The new trauma and emergency medical information system, called TEMIS, would collect 911 data. This would help county planners ensure that hospitals in high-crash areas had enough trauma beds, for example. Personal computers at 37 hospitals would be linked to two Intel Corp. I486-based servers from Hewlett-Packard Co. located at a downtown data center.

The plan was to install PCs and train personnel at the hospitals first, then bring up the network hub to replace an old, overworked system based on an IBM 3090 Model 600J mainframe.

But on Feb. 15 — the very day the new system was to be loaded — an electrical fire swept through the EMS data center, destroying the system Stoker had fought so hard for. The fire started on another floor, then spread rapidly to the seventh-floor data center — with tragic results.

Both HP servers, mainframe backup tapes ready for loading and a backup network of 15 PCs went up in smoke in the 1,500-degree Fahrenheit heat. About the only shred of good news was that the mainframe data (on a system located some 15 miles away) had not yet been erased.

The blaze also destroyed all work in progress, including special reports and responses to user queries. Also lost were disk and hard-copy backups of an ongoing study by Stoker. The building had no sprinklers.

Tragically, the paper documents destroyed had been moved to the data center just days earlier, when heavy rains threatened to flood basement storage areas.

"We knew better than to do that," Stoker says of moving the hard copy to the data center. "But these are the basic things you forget about."

A detailed system backup plan also failed. "In most cases, everyone did have backup disks," Stoker says. "But the backups were sitting there right next to their machines."

Four months after the fire, Los Angeles County's three dozen hospitals continue to record and back up 911 data on individual PCs. These on-site systems are polled periodically by Stoker with a rented Intel 80386-based system at the EMS division's temporary headquarters at a medical center in Torrance, Calif.

Starting over

For EMS to get a new system, Stoker must retrace her steps through the original funding process. Unfortunately, the trek has been complicated by the city's recent riots. "The day the riots started, we were supposed to get a purchase order from the county, but that didn't happen," she says.

Now, she explains, "The system has to be cost-justified and proved all over again. It's just the way the bureaucracy works."

However, Stoker remains hopeful that funding for a new EMS system will be approved. When it is, she says, "we are certainly going to be absolutely diligent about reminding people again and again and again" to make backups and store them off-site.

JULIA KING

Chicago flood knocks lawyers from the Loop with power glitch

At McKenna, Storer, Rowe, White & Farrug, a law firm located in Chicago's Loop, a few seconds of fluctuating electricity corrupted key data that took more than 400 work hours to restore.

The April flood produced a power glitch that knocked out the main accounting system for the 65-attorney firm, says Ruel Lacsam, information systems manager. Ultimately, it took eight IS employees two days to recover the database on the proprietary minicomputer from Barrister Information Systems Corp., according to Lacsam. Fifty secretaries worked another full day to collect and re-enter lost billing information.

In contrast, the firm's other strategic system, a Novell, Inc. local-area network running NetWare, emerged from the flood with no problems, Lacsam says. Unlike the minicomputer, the LAN had an uninterruptible power supply (UPS), which issued a 15-minute warning to users before initiating a shutdown of the network.

Given these drastically different results, Lacsam says, "There is now no way that we are not going to get a UPS on our minicomputer, too. We had tried to before, but we could never convince the executive committee to spend the $30,000."

After the flood, however, Lacsam says, he suspects the case will be easier to make. "It is not just one frantic systems administrator predicting doom and gloom," he says. "Disasters really happen."

Fortunately, it didn't take another disaster for Lacsam to persuade the firm's 100 or so personal computer users to regularly back up their data to hard disk. Most, he says, were already religious about backing up their stand-alone machines.

Testing 1-2-3

Even still, it appears that restore functions were never tested. So it was not until after the flood, he says, that many users discovered software glitches that made restoration complicated or impossible.

"We had people doing backups for years and years, but they had never tried restoring their systems from the backups," he explains.

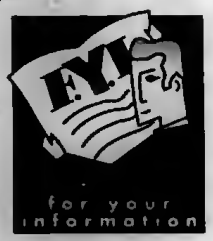
The moral? "Unless you practice what you preach and do dry runs, you never know if your systems will work or not until an emergency. And then, it might be too late," Lacsam says.

JULIA KING

Power problems plague Filipinos

▶ As bad as summertime power problems can be in the U.S., they're far worse in the Philippines.

The Asian nation's information technology sector recently went through its worst power crisis in recent memory.



The island of Luzon, for example, experienced power outages of more than eight hours a day as several power plants broke down. Repairs to the plants shortened the outages, but brownouts continued.

Filipino companies have taken to combining generating sets with uninterruptible power supplies to preserve battery life. Some information systems departments at larger companies, such as Pure Foods Corp., survived the crisis unfazed.

"We have very good generators supporting the company, so we're not affected," says Miguel M. Hilado, Pure Foods' electronic data processing assistant vice president.

Others haven't been so lucky. An official at Data Center, Inc., a Development Bank of the Philippines subsidiary handling software development for the bank, acknowledged that some projects are already late by as much as two weeks.

Rexsys the right Rx

▶ Raymond Professional Management, Inc., a well-known contingency planning consulting firm based in Roswell, Ga., will equip its consultants with the Rexsys business recovery planning system from Recovery Management, Inc.

Raymond Professional Management has developed, set up and maintained more than 500 contingency plans for large, diversified organizations worldwide.

Rexsys is a recovery planning expert system for IBM personal computers. The system features include a natural language interface, a relational database, an inference engine, reports, graphics, statistics, audit trails, checking, on-line Help and a model recovery plan to help guide users.

Rexsys is installed at over 800 sites worldwide.

Flood of trouble

▶ During the recent flood in Chicago, more than 250 million gallons of Chicago River water, 40 feet below street level, flooded 35 Loop basements, shut off electricity and gas at dozens of buildings, caused major damage to more than 120 properties and forced the evacuation of hundreds of thousands of downtown workers.

The loss to businesses, services, transportation, communications, trade, real estate and government has been estimated at nearly $2 billion.

Mark L. Gordon, partner at Chicago-based Gordon & Glickson, a law firm that works with the computer and high-technology markets, says such disasters emphasize the need to spend money up front to protect a business or institutions's data and information services.

That's especially true in Chicago, where it has been reported that the flood might have been avoided had the city made a single $10,000 repair to the damaged portion of the tunnel system.

Planning ahead

The First International Disaster Avoidance/Disaster Recovery Conference and Exhibition, sponsored by *Power Quality Magazine* and *Disaster Recovery Journal*, is being held in Chicago today through Wednesday.

The Fourth International Disaster Recovery Symposium & Exhibition will be held in Atlanta Sept. 28-30. For more information on either conference, call (314) 846-1001.

For more information on disaster planning, contact the National Headquarters of the Association of Contingency Planners by writing to P.O. Box 73-149, Long Beach, Calif. 90801. It can also be reached by telephone at (310) 398-2277.

If you've got wet records or smoke odors following a disaster, and you don't know where to turn, consider the new *Disaster Recovery Yellow Pages*. The $98 book covers various issues, including entries on consulting and services, hot sites, mobile buildings and teller facilities, emergency equipment sources, software for planning, data recovery, training publications, supplies and associations. For more information, call (314) 846-1001.

LA bank takes no chances

From the window of his downtown office at Fiduciary Trust Co. International in Los Angeles, President Don Keene could see fires burning and smoke thickening over the city on the morning of April 30, 1992. It was the day after the acquittal of police officers involved in the Rodney King case.

By noon, several adjacent office buildings had received bomb threats. An hour later, Fiduciary shut down.

That night, after several dozen telephone calls among the firm's employees, the decision was made to have staff members report the following day to an alternate site operated by Comdisco Recovery Services, Inc. in Cypress, Calif., about 25 miles away. With that decision, the disaster recovery plan was set in motion.

The next day, five Fiduciary employees worked at the Comdisco site. They arrived bearing backup discs, which employees store off-site at their homes, and established communications with the data center of parent company Fiduciary Trust Co. International in New York.

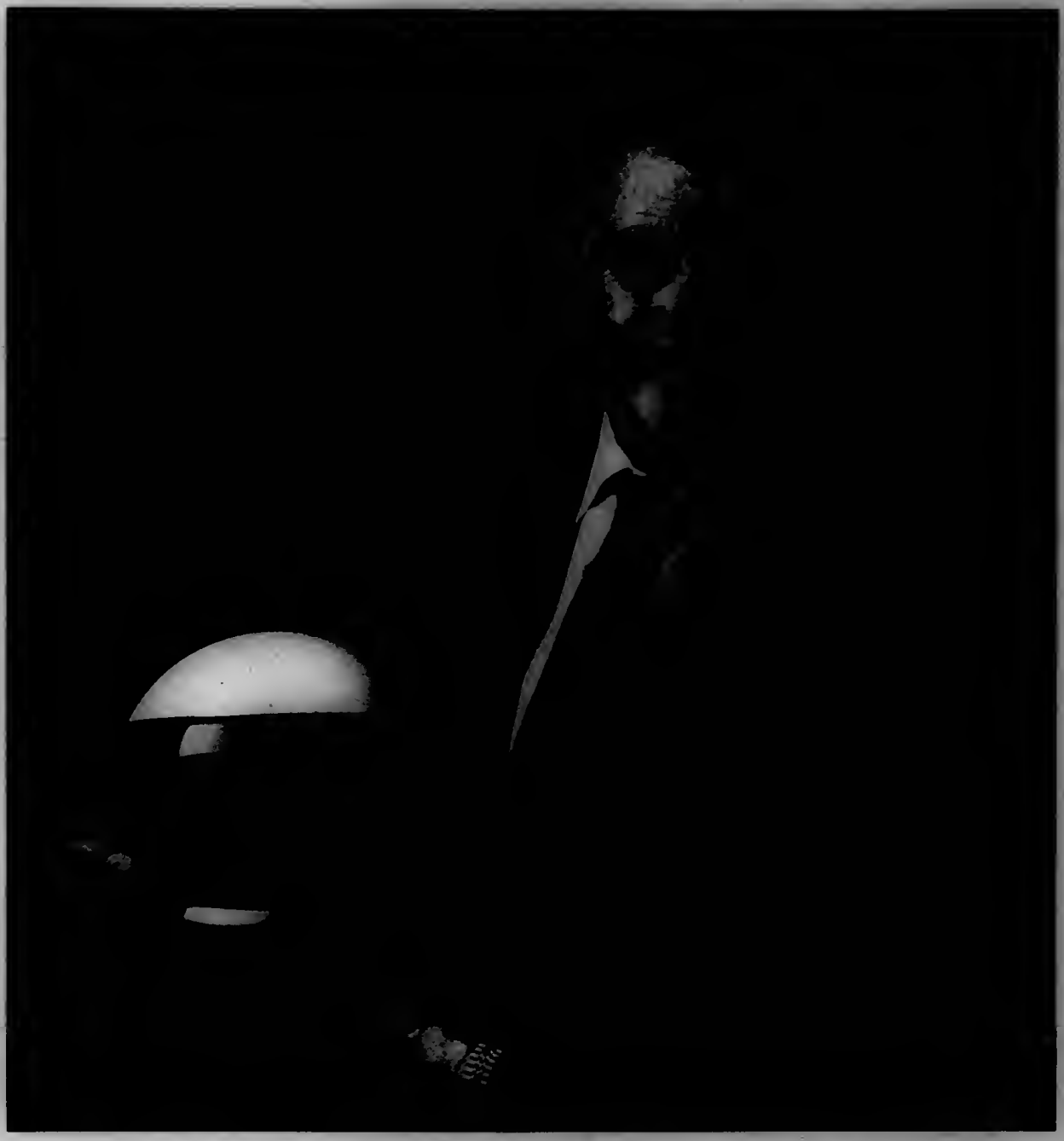
As it turned out, Fiduciary's office building emerged unscathed from the riots that rocked Los Angeles for the next several days. But by testing the disaster recovery plan, the company learned several lessons, Keene says.

Now, for example, the Fiduciary staff knows how to remotely retrieve telephone messages from office answering machines.

Plus, employees now know the correct telephone number of the 24-hour Comdisco hot line, which customers call to declare a disaster and to notify the site of their arrival time and any equipment needs. The day before, Keene had reached Comdisco's answering service.

Finally, the group has set up a system of telephone trees so staffers aren't all trying to contact a single coordinator at the same time.

JULIA KING



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ARCUS

New breed of disaster-proof sites built to last

BY MARY RYAN GARCIA

For EJV Partners Ltd., safe data is more important than a prestigious Manhattan address.

"For anybody who's got a mission-critical business in financial services, you're only as good as your availability," says Joseph DeBellis, who manages operations and facilities at EJV.

Composed of six major brokerage houses, the firm provides financial and information services to Wall Street clients.

Rather than face frequent brownouts in New York, DeBellis says EJV took its data center to the "disaster-proof" Newport Financial Center in Jersey City, N.J., just five minutes from Manhattan.

The Newport Financial Center *has 13.2kVA power mains and 750kVA UPS units*

EJV is one of a growing number of companies moving data centers to "safe houses" or beefing up their own facilities to protect against disasters.

Earlier this year, for example, the Wall Street Telecommunications Association contracted two major firms to build and operate a trading-capable disaster backup and recovery facility for investment trading firms at Brooklyn's MetroTech Center.

The idea of building or moving to disaster-proofed buildings makes good sense, says Kenneth Brill, president of Computersite Engineering, Inc., a Santa Fe, N.M.-based consultancy specializing in disaster avoidance.

Until recently, Brill says, many companies didn't even take the most basic precautions against disaster, such as regular electrical maintenance.

However, during the past few years a series of disasters, including a fire on Fulton Street in New York in 1990, forced companies to reevaluate their disaster recovery plans.

Now, many companies are trying to avoid a "corporate heart attack," Brill says. New architecture is one answer.

"During the late '70s and '80s, buildings were constructed like donuts, with fancy facades and not much inside," says Ronald Bowman, director of real estate at the Newport center. "Now, they're being designed like danish, with the important ingredients inside."

Julie Schwartz, associate director at research firm Dataquest/Ledgeway, says the movement to fortify new construction is accelerating. New buildings, she says, are being built with data communications and disaster proofing such as fire retardant materials and halon gas.

Bowman says the $30 million Newport facility, finished in 1989, was built from the inside out. Com-site, a corporate data center design firm, was hired to plan and design the three computer floors.

Tenants can use their own computers or the facility's plug-ready data center. Nearly one-quarter of the center's 450,000 sq ft is available for mainframe and data processing.

The 14-story building boasts a teleconference auditorium, two network control centers, high-speed communications gear, battery backup, dual routing and a fault-tolerant Digital Equipment Corp. FT 310 VMS.

Supplementing two 13.2kVA power mains are five Teledyne, Inc. 750kVA uninterruptible power supply (UPS) units built to military specifications. Nine hundred batteries can provide 15 minutes worth of 3,000kVA backup.

Satellite, microwave, fiber-optic technology and Integrated Services Digital Network are also available. Halon fire control, an on-site backup water supply, air conditioning and electrical monitoring systems and 36 hours worth of generator fuel complete the picture for Newport's 40 tenants (another 15 spots are vacant).

Bowman says the center has successfully withstood several warm-weather brownouts.

Protection below sea level

San Diego's downtown convention center also reflects concern about disaster proofing.

The 2-year-old facility features a centrally located, 1,200-sq-ft communications control room that functions as a disaster planning center, according to Brian York, director of the center's information systems. The room has its own power and environmental services, he adds.

Because two parking floors of the waterfront convention center are underground and surrounded by water, backup UPSs ensure the 24-hour pumping of ground water (to prevent flooding) will continue even if power fails, York says.

In an emergency, two internal power units can supply 1,600 amps of DC 48V power to the building's DEC VAXs and personal computers for 16 hours.

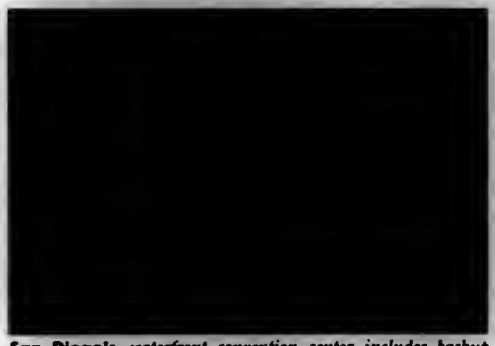
Although the center has never had to mobilize its disaster contingency plans, York isn't taking any chances. Because earthquakes are a major threat in California, York says he spends $60,000 to $75,000 per year on contingency planning.

Attractive as operating in disaster-proofed quarters sounds, there are still trade-offs.

"The down side," Bowman notes, "is that you have to trust me. IS people are reluctant to give up control because their jobs depend on it.

"But," he adds, "some have already lost their jobs due to poor disaster planning."

Garcia is a Coram, N.Y.-based freelance writer.



San Diego's *waterfront convention center includes backup UPSs to ensure water pumping capability in case of flooding*

Vendors: Better safe than sorry

New generation of disaster products and services is hitting the market

BY LESLIE GOFF

Not long ago, a construction crew accidentally cut a fiber-optic cable buried 40 feet beneath a Minnesota highway, knocking out the area's telephone service.

This could have been disastrous for Northern States Power Co., a Minneapolis utility whose nearby customer service center handles 4,500 to 7,000 calls per day. Mainframe communications between headquarters and six power plants were also threatened by the phone outage.

Yet, says Dave Lundahl, a senior communications analyst at Northern States, the utility didn't know a break had occurred until US West called 10 minutes later.

The reason: US West Communications, Inc.'s new Self Healing Network Services (SHNS) had transparently rerouted voice and data traffic within 25 msec. A dedicated service for users with large amounts of video, data and voice traffic, SHNS operates traffic on two concentric fiber-optic rings. In the event of a failure, the service "heals itself" instantly by reversing the direction of the traffic.

In recent months, dozens of new products and services aimed at preventing or coping with disasters have hit the market. The new offerings supplement traditional off-site data storage and hot sites with data, voice and network products.

From disaster recovery consulting and outsourcing to personal computer-based software that lets users develop their own recovery plans, planning for the worst is becoming a big business.

Because the market encompasses a wide range of products and services, analysts can't say exactly how much it's worth or how fast it's growing. But most say they know the reasons.

Protecting phones

Tighter integration of computers and phones are fueling interest, says Curtis Edfast, chairman of the Association for Contingency Planners in Long Beach, Calif. Well-publicized and costly phone and power outages on Wall Street and elsewhere have also boosted concern. Power outages alone cost U.S. businesses an estimated $12 billion in 1991, according to reports by Collective Intelligence, Inc. in Santa Rosa, Calif.

Telecommunications is one of the busiest areas in disaster recovery. For example, AT&T Disaster Recovery Services and MCI Communications Corp. in Washington, D.C., now guarantee 30-minute restoration of call completion to their 800-line customers.

As a result of the huge nationwide outage on Sept. 17, 1991, AT&T reportedly has also budgeted millions to upgrade its backup and power systems.

Local support

Some local carriers, including Illinois Bell Telephone Co., are also beefing up their disaster-avoidance systems. Others, such as Metropolitan Fiber Systems, Inc. in Chicago, offer network rerouting.

AP/Wide World

Disaster recovery services *can help companies get up and running again following catastrophes such as fire*

Users such as Lundahl appear to like the new services. "This [self-healing] network is new," he says. But "we're continuing to migrate circuits onto it from other sources because we're convinced of its reliability."

Netlink, Inc., a Fenton, Mo.-based firm specializing in telecommunication protection services, offers point-to-point satellite communications that bypass a company's regular telecommunications network in the event of a failure.

One carrier is even offering SWAT-team service: Last fall, BellSouth Corp. introduced a disaster recovery team, called R-Force, that the company claims can restore central office service within four hours of its arrival at a disaster site. The squad uses a host of equipment, including a diesel generator, fiber and copper cable and digital carrier equipment — all loaded into a small fleet of trucks.

Traditional computer vendors are also jumping into the fray and are expanding their basic disaster recovery services. New offerings include multivendor hot sites complete with telecommunications services and work areas for clients' end users.

Digital Equipment Corp., for example, last November announced its Business Protection Services unit. The unit offers a portfolio of services ranging from emergency analysis to PC-based planning software.

NCR Corp. recently opened a newly expanded, 10,000-sq-ft disaster recovery facility in Dayton, Ohio. Hewlett-Packard Co. has expanded its disaster recovery services and opened a new hot site in Valley Forge, Pa.

Longtime leaders Comdisco Disaster Recovery Services, Inc. in Rosemont, Ill., and Sungard Recovery Services, Inc. in Wayne, N.J., are broadening their product lines. Comdisco inked a deal with MCI to offer users digital reconfiguration of the carrier's networks in the event of failure. In February, the company expanded its disruption-recovery offerings by adding PC-based LAN backup and voice-recovery services. Sungard, among other things, unveiled the DP/90Plus Network, a tool designed to help organizations develop recovery plans for wide- and local-area network and voice systems.

Wider field

New players are entering the market. El Segundo, Calif-based Computer Sciences Corp., a professional services firm, last summer purchased Compusource, a North Carolina disaster recovery firm, for an undisclosed sum.

The new interest in disaster planning and recovery has also energized a small but growing software niche market.

A sampling of recent announcements: Goal Systems International, Inc. in Columbus, Ohio, introduced Sunrise, an MVS-based automated disaster recovery product; and Software Marketing Group, Inc. in Des Moines, Iowa, announced Lazarus, a $299 utility for Novell, Inc.'s NetWare that reboots workstations after a network failure or power outage.

Goff is a New York-based free-lance writer.

Levi Strauss & Co. can attest to that

"

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Announcing a strategic relationship between AT&T EasyLink Services and Microsoft Corporation that will extend your business reach.

AT&T EasyLink Services, provider of the largest public electronic mail network in the U.S., and Microsoft Mail, a leader in LAN-based e-mail, have forged a new relationship.

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AT&T
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Seeing data in new ways

Private businesses now map corporate data to better understand the geographic patterns in their businesses and to improve decision-making

BY DAVID FORREST

A map is worth a thousand words.

Geographic information systems (GIS) first appeared in the early 1980s, when vendors linked the graphics capabilities of automated drafting with the data management functions of a relational database. While the first GIS applications appeared in government agencies, many private businesses are now mapping corporate data to improve their understanding of the geographic patterns in their businesses and to improve decision-making.

Companies are continually asking questions that can best be answered geographically and visually: Where are my customers and competitors? Where should I locate my warehouses? Where should I draw the boundaries of sales territories? What's the shortest route for deliveries? Not long ago, they could get answers only by plotting the information on a paper map and measuring distances by hand.

Katherine Mahoney

Today, GISs tie business data to points, lines and areas on a map for results such as the following:

- If points represent customers, for example, companies can see where they're located and calculate the distance and driving time from the warehouse.
- Instead of plotting delivery routes by hand to find an acceptable route based on trial and error, users can ask the computer to explore alternatives and find the best route using a digital map of streets and delivery locations.
- By pointing to a dot on a map representing a customer, users can access a database and reveal in a window information such as the account name, address, telephone number, sales history and account balance. They can display selected customers based on a query of the database — showing inactive accounts, for example, or accounts with sales greater than a specified amount. They can identify areas where sales activity is highly concentrated and use the computer to examine the effect of competitors on the geographic distribution of customers.

Joseph Ferreira, director of the computer resource lab in the School of Architecture and Planning at MIT, says one of the major benefits of mapping technology today is being able to integrate internal company data with data from outside sources. "It might be your own client list. You've got to be able to juxtapose that against census data . . . and land use and the like," Ferreira says.

Furthermore, geographic referencing has become much more accurate. Instead of ZIP codes and census tracts, he says, users can now get census blocks and block groups, the street address and the location using x-y coordinates.

Visualizing and analyzing information geographically has many applications, including the following: risk analysis in the insurance industry; property development in commercial real estate; asset management in banking; route planning and dispatching in the delivery, courier and trucking industry; site location in the distribution business; audience targeting in radio and television; and demographic analysis in advertising and marketing.

GISs provide a new way of analyzing information in a corporate database, and companies are finding significant benefits in identifying new markets and servicing existing customers more effectively at a start-up cost of about $15,000 to $25,000 (see chart page 86). Total cost will depend on the software selected, the number of locations implemented, the size of the area mapped and so on.

The following is a sampling of businesses putting GISs to work:

Johanna Dairies

Johanna Dairies, based in Union, N.J., is saving money and milking its distribution network for all it is worth using digital street maps provided by Etak, Inc. in Menlo Park, Calif., and computer-aided routing and scheduling software developed by CAPS Logistics in Atlanta.

Customer orders are downloaded from an IBM System/38, and the routing software uses the geographic locations of these customers to define delivery routes. The package helps to eliminate overlaps between routes and reduce the distance traveled.

Bruce Reynolds, a logistics planning coordinator at the dairy, says with customers accurately located on a map, "we can zoom in

Continued on page 86

Forrest is a writer and principal with DMR Group, Inc., based in Victoria, British Columbia.

- **The best approach for implementation**
- **What's ahead for geographic information systems**
- **Companies putting the technology to work**

Continued from page 85

to different areas of the city . . . and see a street name and which customers are on that street." The organization can "see [the] overlap of routes, and how efficiently those routes are scheduled."

With the software, the user can draw a circle around a group of customers, and the package will automatically generate a route and report the number of cases to be delivered, their dollar value, the route times and suggested delivery days.

Reynolds says customer service has improved because routing and scheduling is now more efficient. And the software makes it easier to deal with changes.

"You're always changing something about a dairy," he says. "You lose a customer, you gain a customer." Recently, a major customer changed its manner of distribution from store-door delivery to warehouse distribution, which meant all the routes had to be reworked.

"GIS," Reynolds says, "is helping us deal with those operational problems when they happen."

Johanna Dairies started with 60 routes in the New York area, but through using its GIS to figure out more efficient paths, it has since been able to eliminate eight routes and save itself some money. "The software cost was about $40,000, consulting time was probably another $40,000," Reynolds says. One route costs $100,000 a year, which includes the cost of paying the driver. "As soon as I took one route off," he explains, "I had payback."

AT&T

The business communications services area at AT&T has been using GIS to geographically define sales territories for account executives. These territories are based on the geographic distribution of AT&T's customers and the revenue they represent as opposed to using "the artificial boundaries of ZIP codes," says Marc Jones, staff manager of business network sales at AT&T. Now, Jones says, the company can identify logical business communities based on the pattern of customers visible on the map.

"Because customers are represented by symbols, we're able to shade [the symbols] by value of those customers. We can pull out all our Japan-calling companies, and see what that distribution is. Or we call pull out all our high-billers," those companies that buy high-end services for the commercial market, he says.

In this way, the company can more equitably partition its sales territory so no one account representative gets all the hot prospects, Jones explains. For example, in New York City, a lot of high-billers are in midtown.

According to Jones, because of the system, he can say, "I'll give you a piece of this midtown with some high-billers, but then you'll take this other territory where you see [the prospects] are not quite as good."

AT&T expects to deploy the system, which is from MapInfo Corp. in Troy, N.Y., in 28 branches by the end of the year.

The company is currently integrating GISs running on personal computers in branch sites with customer information resident on a mainframe. Users will download customer data to the GIS for analysis and display. "We're working on how to transfer data, what data should be stored in the mainframe and what should be stored [locally]," Jones says.

Chemical Bank Corp.

Chemical Bank Corp. in Jericho, N.Y., uses GIS software to monitor compliance with the Community Reinvestment Act (CRA). The federal law requires that lending institutions not discriminate in

A street-level *view of mortgage distribution for Manhattan using MapInfo*

their market areas based on race or income, and banks such as Chemical must ensure they are not doing so.

Chemical Bank's affordable housing unit provides special mortgages for homeowners in low and moderate income tracts. Michael Burke, the unit's manager, says the company has developed a link from its corporate mortgage database to its MapInfo GIS. Loan data is downloaded every day, and the GIS geographically compares the location of each property to census tract boundaries to classify loans as CRA or non-CRA.

Using the GIS, Burke says, enables the institution to compare loans it is providing currently with what it should be providing in those areas and plan accordingly.

"We got involved with [GIS] to help us track the type of loans we're providing to lower income areas, to figure out what areas in our lower income markets we were missing and how we could better serve the lower income markets we were missing," he says.

Burke says the GIS has speeded decision-making because the information is immediately available. "What would normally take one person a week to do," he says, "our GIS does in five seconds."

Getting started

Johanna Dairies' Bruce Reynolds gets calls all the time from potential users who want to know what they're getting into when they implement a GIS.

In terms of start-up time, Reynolds says, it typically takes about two months to input data and another two to build up confidence and familiarity with the system, based on his experience with his routing and scheduling application.

What's the best approach to implementing a GIS? Most users advise novices to start with one or two locations with a PC-based system and prepackaged street maps, ZIP code maps and census data. As a company gains experience and begins to see the benefits of the technology, they can introduce GIS to other locations incrementally and try new applications.

General-purpose mapping systems are best for applications used to analyze and visualize corporate data. More special-purpose programs using digital maps are best for very focused applications, such as route planning and scheduling. If the application requires data from the host, the company may decide to download that data and store it locally in the GIS or use the SQL support capability of the mapping package (if available) to query the corporate database.

DAVID FORREST

Jewelry retailer

A national jewelry retailer in the U.S. has implemented an application in which sales data transferred from a host computer is passed to a GIS to create maps showing whether inventories are selling above or below plan, according to Ben Dellavedova, director of commercial solutions for Tydac Technologies, Inc. in Arlington, Va. "Eventually," Dellavedova says, "[the retailer] is going to make about 15,000 of these maps — one for each product, by store."

In this way, when a store reorders, the buyer can bring up the map for each item and look at the sales pattern. "He'll see how [the item] has been selling — whether it's regional in sales, or whether it's weak or strong in most of the stores," he explains.

The buyer can decide whether to transfer the item from store to store, replenish the inventory in all stores or not bother to reorder the product.

BT

BT used a GIS to help it acquire an American telecom company, according to Tony Buxton, chief executive officer of GIS developer Tactics International Ltd. in Andover, Mass. The UK company built a database of millions of American businesses on a mainframe and identified target customers using the SIC industry classification code. The company used Tactics' Tactician GIS to map the networks of half a dozen telecom firms it was evaluating. Then it used the SQL capabilities of the GIS to access data from the host and map the target customers.

Buxton says by comparing the geographic distribution of customers and networks, BT was able to identify the telecom company that provided the best coverage of the UK company's target markets. "They were able to find the right partner in the space of just weeks," he says. Based on that analysis, the UK firm made an acquisition for several hundred million dollars. •

Exploring the GIS future

Future architectures will provide much greater flexibility for GIS, according to Joseph Ferreira, director of the computer resource lab in the School of Architecture and Planning at MIT. "What we've been working on here," Ferreira says, "is unbundling GIS and then repackaging it for delivery over a network." This is expected to occur within two years.

Ferreira says he believes that in the future, GIS will not be monolithic. There will be back-end tools for data capture and data management and front-end tools for decision support. Instead of relying on a single GIS package, geographic information processing will be dispersed throughout the organization.

DAVID FORREST

What GISs will cost you

A breakdown of software and data prices

Mapping software:
Workstation-and minicomputer-based systems: $10,000 and up
PC-based systems: $500 to $5,000

Boundary data: *ZIP codes, census tracts, census blocks and so on*
National coverage: $2,500 to $7,500 for each boundary type
Local coverage: Starts at $200

Street data: *Streets and street names*
National coverage: Approximately $75,000
Local coverage: Starts at $400

Business locations and summary business data: *Shopping centers, supermarkets, hospitals, and so on*
National coverage: $5,000 to $50,000 for each business type
Local coverage: Starts at $200

Census data: *Current year household data, current year business data, household income, projected population, age data, retail trade data, retail potential data and so on*
Depending on the type of data and geographic coverage: $200 to $100,000 total

Overall cost
Possible total initial investment in geographically referenced data: $200 to $250,000. Typical investment: $10,000 to $20,000. Annual updates are extra. Some data sets have a yearly renewal fee.

FOR YOUR INFORMATION

The Geographic Information Systems/Land Information Systems (GIS/LIS) conference will be held in San Jose, Calif., Nov. 8-12, 1992. Contact: (301) 493-0200.

GIS World magazine will hold its GIS in Business '93 conference from March 7-10, 1993 at the Boston Sheraton. Contact: (303) 223-4848.

MANAGER'S JOURNAL

EXECUTIVE TRACK

The Society for Information Management (SIM) announced its 1992-93 slate of officers earlier this month. Heading up the professional organization for senior IS executives as president is **Patricia Wallington**, who is vice president and chief information officer at Xerox Corp.'s Rochester, N.Y.-based Corporate Information Management Division. Serving as president-elect is **Robert Rubin**, vice president of information services at Elf Atochem North America in Philadelphia.

Rounding out the new executive suite are the following: **James Kinney**, who was re-elected for a second term as vice president/finance; **William Eager**, vice president/chapter relations; **Harvey Shrednick**, vice president/communications; **Ed Prandle**, vice president/programs and products; and **Donald Marchand**, vice president/international.

.....

Leslie G. Hennessey has been promoted to vice president of IS at **Lovejoy, Inc.**, a mechanical power transmission equipment manufacturer based in Downers Grove, Ill.

Hennessey, an 11-year Lovejoy veteran who has been serving as the company's MIS/CIM director since 1989, will oversee all IS functions, explore emerging technologies and strategies and also continue to manage and develop Lovejoy's international sales and marketing efforts.

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Former National Car Rental System, Inc. Executive Vice President **Terry Redmond** is the first occupant of a newly created position: vice president of strategic planning at Philadelphia-based **Rosenbluth Travel Agency, Inc.** Reporting directly to company President and Chief Executive Officer Hal Rosenbluth, Redmond is currently responsible for developing and deploying technology-based travel management products and services, as well as mapping corporate strategies for the car rental company.

Doing IS by the books

Macmillan's Hughes binds dual roles of IS implementor and products innovator

BY JOHANNA AMBROSIO
CW STAFF

PROFILE: Louis B. Hughes

Position: *Senior vice president of information technology*
Mission: *To guide IS infrastructure and generate new product ideas*

Louis B. Hughes may well be a next-generation information systems executive. As senior vice president of information technology at Maxwell Macmillan Publishing Co., the U.S.-based arm of the Maxwell publishing empire, Hughes must not only guide the company's IS infrastructure but also generate new product ideas by marrying Macmillan's products with emerging technology.

"My role is [that of] an advocate for exploiting new technology for our business, to contribute to the individual business plans and strategies," Hughes says.

Because Macmillan, based in Greenwich, Conn., is essentially an information company that publishes books and travel guides and provides data on compact disc/ read-only memory (CD-ROM), among other products, the top executives are "a receptive audience," according to Hughes. "We are invited to the table" to help brainstorm new technology-related business opportunities, he says.

Still struggling to get back on track following the sudden death of founder Robert Maxwell in November 1991 and the ensuing financial morass, Macmillan officials are reluctant to detail future strategies. Insiders also cite competitive pressures for not revealing too much of their hand.

But even within necessarily vague parameters, Hughes points to ways in which his dual roles as chief IS implementor and new products generator are dovetailing to benefit the company.

The P. F. Collier Encyclopedia Division, for example, is going through a major revamping, which includes bringing in new executives from elsewhere in the firm and rethinking the product-development process. Hughes, acting as an adviser to Collier, leveraged his technological roots to advance the suggestion of doing manuscript develop-

Continued on page 88

Re-engineering: It's great, whatever it is

BY NELL MARGOLIS
CW STAFF

Re-engineering may be breaking down the door at the nation's corporations, but it could have a hard time making its way into Webster's. According to a recent management survey, the executives who are urging the necessity of re-engineering show scant agreement on what the word means or the concept implies.

Some 88% of 121 large-company senior executives surveyed by New York-based Gateway Information Services said their firms had undertaken or furthered re-engineering initiatives within the past three years — between 10% and 48% more than those who reported having downsized, outsourced, restructured or expanded automation.

However, the picture of a large majority of executives pursuing similar goals for similar reasons fragmented quickly as the survey respondents attempted to define re-engineering (see chart below). And this could wreak havoc on the career of an IS director whose definition of re-engineering jars with the chief executive officer's, said Kathy Brittain White, information systems vice president at Greensboro, N.C.-based Guilford Mills, Inc.

"It doesn't even matter whose view is bolder or more comprehensive or more sophisticated," White noted. "Any way you cut it, if the CEO and the IS executive have different definitions, they also have different expectations."

What is it, anyway?
The 121 senior executives surveyed choosed re-engineering but differed widely on what it actually means

Definition	% responding
Work flow/process redesign	46%
Technology change	17%
Product change/development	16%
Efficiency improvements	8%
Customer satisfaction	4%
Other	9%

Source: Gateway Information Services
CW Chart: Janell Genovese

Re-engineering points up the problem.

"It's like we can't even use the word, because our executives think it means one thing and we [in IS] think it means something else altogether," said Frank Monteleone, strategy planning and information technology manager at The Nutrasweet Co. in Deerfield, Ill. "We see it as a total shift in thinking — process orientation, continuous improvement."

What to do? What you can, Monteleone said. "We're trying to sell management on the larger concept of re-engineering as re-evaluating and changing the way you do business," he said.

"But we're starting with the basics, so we can show some payback up-front."

Quality effort at crossroads

BY NELL MARGOLIS
CW STAFF

NEW YORK — It's been big for years. But is Quality Management — a trend that has spent the past several years with one foot on the corporate ladder and the other on the slippery rim of the buzzword archives — about to get real?

Maybe, according to a series of research reports recently issued under the joint auspices of management consultancy Ernst & Young and the American Quality Foundation.

"One thing that's certain is that the quality movement is here to stay," American Quality Foundation President Joshua Hammond said last week. Less certain, he said, is whether U.S. companies are ready to move the much-talked-about concept from preaching to practice.

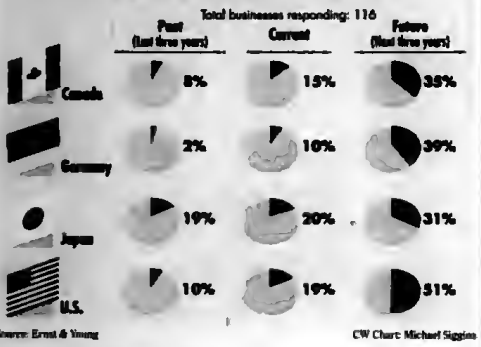
However, Hammond said, because technology is the key enabler of quality, the role of the information systems director and team in the corporate structure will likely have a lot to do with whether quality becomes an ingrained habit or is sentenced to more time as an agenda item.

"One of the biggest barriers to the transition from quality as rhetoric to quality as habit is compartmentalization," Hammond noted. Technology-enabled quality — and the competitive advantage that the truly customer-driven orientation confers — will find a hard time taking root at firms whose IS directors are not involved in the "business of the business" from strategy to product design to human relations, he said.

Ernst & Young and the American Quality Foundation teamed up to measure the march of quality in four countries: the U.S., Canada, Germany and Japan.

Top execs' bottom line: Quality counts — big-time

Quality as a major assessment criterion for gauging executive pay is on the rise around the world



They studied some 500 companies across a wide spectrum of industries, gathering data on 102 areas of management practice related to quality and contrasting companies' intentions with their actions.

In search of quality

Not surprisingly, they found that in all countries but Japan, performance still lags promise by a long stretch. What gave the joint researchers hope were findings such as this one: Quality performance is suddenly looming large in determining how much bacon the boss brings home (see chart).

That U.S.-based firms are focused in the right direction, Hammond said, showed up in vertical industry findings such as the following:

- While 20% of the computer firms studied plan to focus use of technology on meeting customer expectations, 50% are expected to be doing so by 1995.
- Today, some 20% of the nation's automotive companies include customers on their design teams; by 1995, according to the study, 43% expect to do so.
- Some 28% of the banking industry's employees regularly attend quality meetings at the present time. In three years, the study said, that number is expected to be closer to 52%.
- Less than 10% of a hospital's medical staff fully understands the organization's strategic plan today, but that number is expected to rise to an estimated 58%.

"These optimistic forecasts by U.S. companies hold true across virtually every key indicator," Hammond said. If the businesses studied "can actually deliver on these promises," he added, "it would make a sensational transformation."

The joint researchers found quality performance reviews largely among the missing at U.S. firms. And the reviews that are in fact going on appear to be aimed at judging quality programs rather than making quality processes the measure of business results.

Macmillan's Hughes does IS by the books

CONTINUED FROM PAGE 87

ment on CD-ROM. "We're going to really change how we look at that business," he noted.

Hughes sees his job as mostly an advisory one, working with the IS executives in each line organization. These line IS execs report to the top brass in each of the divisions, not to Hughes, although he meets every quarter or so with his IS colleagues.

Hughes also gets together regularly with the top Macmillan executives to hear where the various business units are headed and to see how he can help facilitate the melding of technology with their business plans.

"There are specific things I can do to help foster this, like expose the senior business leaders to what the new technology looks like. I've arranged some high-level briefings and demos for selective execs," he says.

Steps to success

"To realize the opportunity, we must do several things. The first is to understand the trends and have a clear scenario in terms of technology evolution," he says. The second "is to visualise what the new products and services will look like using the technology that isn't here yet."

The final step is to develop business plans and strategies to translate the ideas into tangible products.

Right now, Hughes says, Macmillan is "in the middle of thinking through how to identify new technology." At this point it looks like the corporate staff will remain small; on a "selective basis," Hughes says, consultants will be called in for specific projects. Finally, some of the individual business units will be asked to track specific technologies for the whole Macmillan organization. About a year ago, the company established a multimedia competency center in Cambridge, Mass.

The corporate data center in Oak Brook, Ill., serves as a centralized resource for most of the Macmillan companies. For the marriage of technology and product development to last beyond the honeymoon stage, he says, it needs "an efficient, effective information processing center that houses a repository used to deliver new products and services and as a research and development engine for new product development."

While the IS and communications infrastructure is in place for today's needs, Hughes says, it will continue to grow and change as business demands dictate. One emerging area is the development of intellectual property in all media forms, including voice and multimedia. "We've done some of that for our products, but most of that work is still ahead of us," he says.

"Ahead" is a somewhat touchy concept at Macmillan these days. Maxwell Communication Corporation PLC, the U.S. company's UK-based parent, is going through bankruptcy proceedings on two continents — in the U.S. and in the UK. The U.S. group of Macmillan companies, however, is not part of the Chapter 11 proceedings, a spokeswoman says, and is free to operate without those constraints.

Within the past couple of weeks, however, a reorganization plan was proposed that would require the U.S. group to sell off its nonpublishing assets. So the ultimate fate of the U.S.-based companies is not clear.

Notwithstanding the looming uncertainty, Hughes says he is enjoying his job, which he took on after 18 months at the Equitable Life Insurance Society of the U.S. as senior vice president of information services. A 32-year veteran of the computer industry, Hughes started working for IBM in 1960 as a systems engineer. He rose through the ranks at IBM, winding up as branch manager of the New York office.

Hughes crossed town to Salomon Brothers, Inc. in May 1981. "It was a very exciting time, combining trade and analytics," he says. At Macmillan, Hughes says, both aspects of his job "are exciting and interesting. There is a great transition taking place with technology that will transform the business. It's an opportunity few of us get."

BOOK REVIEW

The nature of enterprise computing

Enterprise Computing
By Alan R. Simon
Bantam Professional Books, $49.95

In many offices, the terms "enterprise computing" and "open systems" are used interchangeably. Not so in yours, if you read *Enterprise Computing*.

To set the record straight, Simon delivers his definition of enterprise computing on the first page as the goal of seamless integration of applications, data, user interfaces and other computing resources among distributed heterogeneous systems of all sizes. Open systems, meanwhile, are one foundation upon which enterprise computing will be achieved.

What sets enterprise computing's *seamless integration* apart from "systems integration," he adds, is that with systems integration, there is no single "open" set of interfaces between multiple heterogeneous portions on an enterprise readily available; bridges and gateways are needed to integrate. Moreover, connectivity, he adds, does not necessarily mean cooperation.

Simon, now a consultant, is a former principal software engineer and business development manager for the database systems and tools unit at Digital Equipment Corp.

In his 303-page book, he shares information useful to information systems managers: the challenges of converting to enterprise computing (such as connectivity, cooperative processing and network and system management); the driving forces behind enterprise computing (user desires, technology such as personal computers, local-area networks, client/server architectures, standards and a changing marketplace); and the differences between migrating and converting to enterprise computing (migration is more complex).

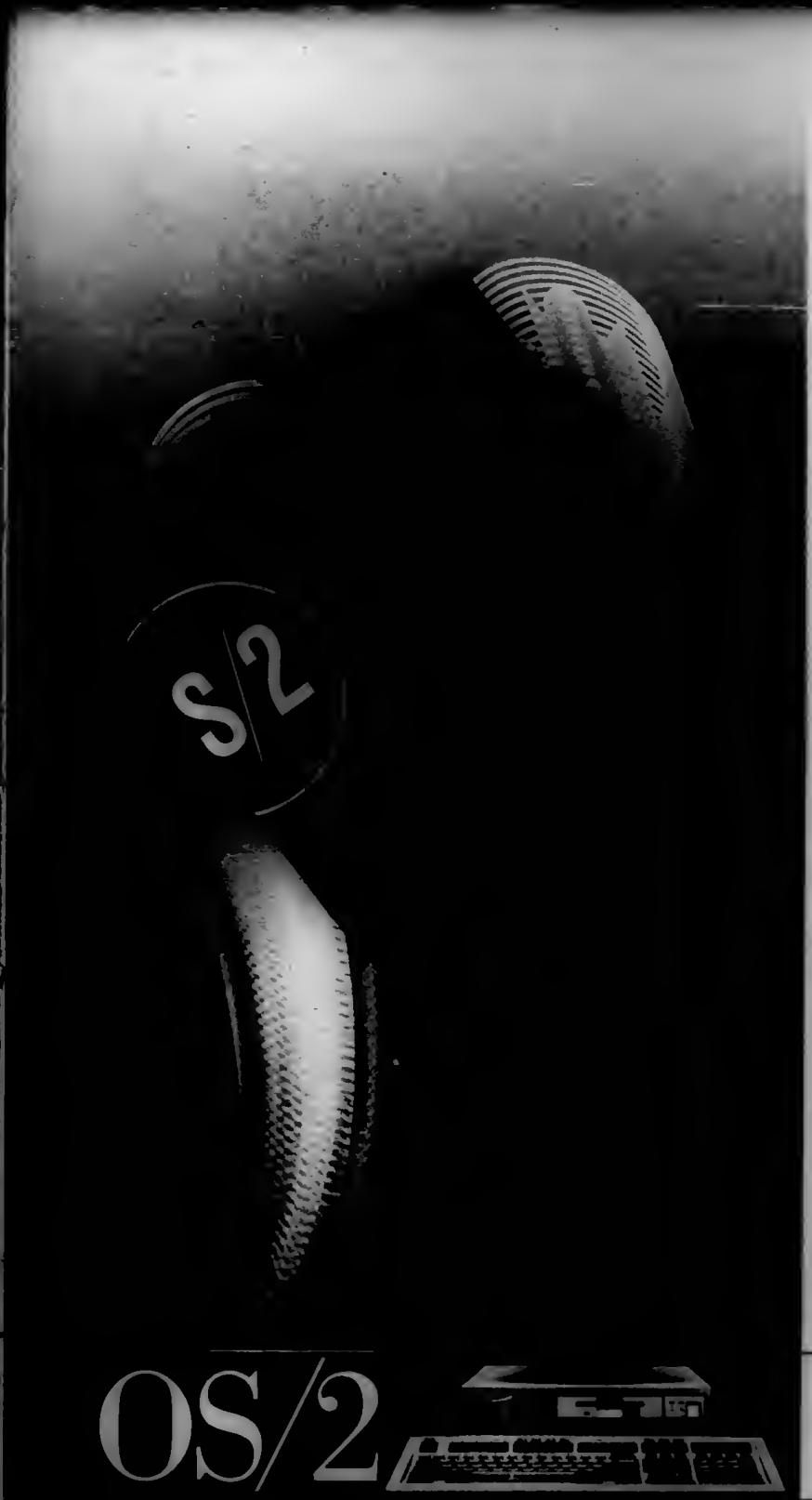
To help the reader through this technical topic, the author uses plenty of diagrams. His writing is straightforward and generally digestible.

Over the course of 50 pages, Simon looks at vendor-based architectures: IBM's Systems Application Architecture, Hewlett-Packard Co.'s NewWave Computing and DEC's Network Applications Support.

He also examines systems being designed and implemented that are based on open system concepts and include the Open Software Foundation's fundamental model. He also discusses how to achieve enterprise computing within an organization's current computer systems.

For IS managers lost in future migration terminology, *Enterprise Computing* might provide some much-needed clarity.

ALAN J. RYAN



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CALENDAR

JULY 12-18

American Association for Artificial Intelligence (AAAI) National Conference. San Jose, Calif., July 12-16 — Contact: Carol Hamilton, AAAI, Menlo Park, Calif. (415) 328-3123.

Software User Documentation: Designing for Usability. Boston, July 13-14 — Contact: Digital Equipment Corp., Marlboro, Mass. (508) 297-6910.

Client/Server Boot Camp. San Francisco, July 15-17 — Contact: Database Server Systems, San Francisco, Calif. (415) 583-3000.

JULY 19-25

ComNet. San Francisco, July 20-23 — Contact: Matt Mandino, World Expo Corp., Framingham, Mass. (800) 225-4698.

Object World '92. San Francisco, July 20-23 — Contact: Lynn Fullerton, World Expo Corp., Framingham, Mass. (800) 225-4698.

Memory Expo '92. Santa Clara, Calif., July 21-23 — Contact: Memory Expo '92, Englewood, Colo. (303) 220-0600.

QuarkXPress Users Conference. New York, July 22-23 — Contact: QUI, Salem, N.H. (603) 898-2822.

JULY 26-AUG. 1

The Managing Enterprise Networks Conference. Boston, July 27-29 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Gigabit Networks. Washington, D.C., July 28-29 — Contact: Wilma Hurwitz, Technology Transfer Institute, Santa Monica, Calif. (310) 394-8305.

PC/Canada. Toronto, July 28-30 — Contact: The Interface Group, Needham, Mass. (617) 449-8938.

Color Connections 4. Boston, July 30-Aug.1 — Contact: Graphic Communications Association, Alexandria, Va. (703) 519-8162.

AUG. 2-8

GroupWare '92 Conference & Exposition. San Jose, Calif., Aug. 3-5 — Contact: The Conference Group, Scottsdale, Calif. (602) 661-1260.

Fed Micro '92. Washington, D.C., Aug. 5-6 — Contact: Sylvia Griffiths, National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

Fed CD-ROM and Multimedia Conference & Exposition. Washington, D.C., Aug. 5-6 — Contact: Sylvia Griffiths, National Trade Productions, Inc., Alexandria, Va. (703) 683-8500.

AUG. 16-22

SIGCOMM '92. Baltimore, Aug. 17-20 — Contact: SIGCOMM, Menlo Park, Calif. (415) 326-6300.

Windows & OS/2 Conference. Boston, Aug. 19-21 — Contact: CM Ventures, Inc., Emeryville, Calif. (510) 601-5000.

AUG. 23-29

Interop Users Conference. New Orleans, Aug. 23-27 — Contact: Michelle Pettigrew, Interop, Sunnyvale, Calif. (408) 738-4048.

SynOptics User Group Conference. Washington, D.C., Aug. 24-26 — Contact: Dennis Parr, SynOptics User Group, Santa Clara, Calif. (408) 988-2400.

Marketing the IS Organization Internally. Columbus, Ohio, Aug. 25 — Contact: The Ouellette & Associates Registrar, Bedford, N.H. (603) 623-7373.

School mourns first IS director

ATLANTA — F. L. "Bud" Suddath, vice president of information technology at Georgia Tech, died at the age of 50 earlier this month after suffering a heart attack in his office.

Suddath's career was studded with accomplishments in both the biological and information sciences.

Suddath, 50, *suffered a heart attack*

In the early 1970s, as a National Institutes of Health postdoctoral fellow at MIT, he was involved in developing an understanding of transfer DNA.

A research biologist whose work spurred protein growth experiments that were carried aboard the space shuttle in 1990, he also helped spearhead the plans for the State of Alabama Supercomputer Network.

In 1985 he returned to his alma mater, Georgia Tech, where he continued to ply his diverse talents as professor of chemistry and biochemistry and, simultaneously, as director of the Office of Computing Services' supercomputer support group. Three years ago, he became Georgia Tech'a first IS director, charged with coordinating administrative, research and academic computing.

Suddath is survived by his wife, son and daughter.

Check out the Marketplace Pages on Page 100.

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IS spin-offs are in hiring mode

BY JULIA KING
SPECIAL TO CW

If you're an information systems professional with sharp technical skills, some knowledge of a key vertical industry — especially retailing or financial services — and a belief that the customer is always right, a successful career could await you at one of the many IS spin-off companies, where openings for programmers as well as business and systems analysts are plentiful.

Some spin-offs, including Albany, N.Y.-based Key Services Corp., a subsidiary of bank holding firm Key Corp., and Sears Technology Services (STS) in Schaumburg, Ill., furnish IS services exclusively to sister businesses owned by a single parent corporation.

Other spin-offs, such as General Electric Information Services (GEIS), a separate business unit of General Electric Co. in Rockville, Md., and FMC Corp., a Dallas-based financial services company that sells IS and networking services to commercial customers, serve outside clients as well.

In either case, employers say, many of the same skills are required because the emphasis at both types of IS organizations is on customer satisfaction.

"One of the benefits we expected to get by going external was to improve our internal service," says Randall Gannaway, director of operations and telecommunications at FMC.

The spin-off companies interviewed all say they have positions available, many of which carry the same titles as job slots in internal IS departments. At spin-offs, however, IS workers are more likely to find themselves members of cross-functional teams whose collective job is to serve the IS needs of clients in a particular industry.

At GEIS, good technical skills are important, but because the firm targets clients in the retail, trade, transportation, petrochemical and financial services industries, a knowledge of these industries also factors high in hiring decisions, according to Beth Balschi, an IS recruiter at GEIS.

An electronic data interchange (EDI) background and a working knowledge of standards and industry-specific EDI transaction sets also rank high on the company's list of desirable skills.

At Key Services, which employs about 450 people and operates four systems and programming sites in Maine, Oregon, Albany and Buffalo, N.Y., to serve nine banks, the emphasis is on systems integration skills as well as on what Robert Tucker, general manager of information resources, describes as excellent negotiation skills.

"As a matter of corporate policy, we operate one set of applications systems, so if we get a requirement from one bank for a different kind of checking account system, we need to tailor our product to fit that one bank's need or get the other banks to come around to using that system," Tucker explains.

At STS, the 1,700-member IS subsidiary furnishes IS and networking services exclusively to the Sears merchandising group and to the company's Discover Credit Corp., Dean Witter Financial Services Group, Inc., Coldwell Banker and Allstate Insurance Co. business units. Here the primary job of IS staffers is providing internal systems support for the 200 copies of CICS the subsidiary maintains for the Sears business units.

All the right stuff

At STS, ideal candidates are those with a four-year degree in computer science or IS and between 4 and 10 years of experience with CICS and overall systems troubleshooting, technical recruiter Michael Puckett says.

Another requirement Sears specifies is a willingness to keep up with the latest technologies, which STS regularly implements, he says.

"We're always on the edge of new technology, so often it is difficult to find people," Puckett explains. "For example, most individuals have experience with IBM's MVS/XA architecture, but we have MVS/ESA, which is relatively new."

One notable advantage of working at some spin-offs is the ability to move into other, non-IS positions within the overall corporate organization.

For example, employees at Akron, Ohio-based Summit Information Services, Inc., the 225-employee IS subsidiary of trucking giant Roadway Express, Inc., regularly cross traditional career boundaries.

In a typical move, an IS business analyst might transfer to the customer department that the analyst previously supported from the technical side.

Some employers say that another distinct difference is some of the spin-offs are growing and thus offer better job security.

"We're growing as opposed to downsizing," notes Tucker, adding that during the past 20 years, Key Corp. has grown from a $3 billion to a $30 billion bank holding company.

This growth helps keep job satisfaction high, Tucker adds, noting that in 1991, the turnover rate was less than 7%.

King is a free-lance technology writer based in Ridley Park, Pa.

Take your pick

IS spin-offs on solid financial ground have a number of opportunities for systems professionals willing to work as part of cross-functional teams.

- FMC is seeking a VAX platform coordinator and programmers in its billing support operations, says Randall Gannaway, director of operations and telecommunications at the firm.
- GEIS currently has 27 openings that it is looking to fill.
- Robert Tucker at Key Services needs to hire six programmers and systems analysts to tailor off-the-shelf packages.
- To fill six openings, Gerry Long, vice president at Summit Information Services, seeks professionals with a knowledge of Unix and a background in CICS and LU6.2 support.
- Professionals with expert technical skills, primarily in the area of internal CICS programming, may fare well at STS, although the company declined to mention the specific number or type of positions available.

JULIA KING

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Rewards, challenges in marketing support

BY SUZANNE WEIXEL
SPECIAL TO CW

In the old days, it didn't take much to support a marketing department — one systems person could do it simply by building standard monthly reports. But that was then. Once competition started heating up and profit margins started shrinking, effective marketing became much more important to companies' bottom lines.

H. Sue Sheridan, manager of information services at Monarch Marking Systems, Inc. in Dayton, Ohio, remembers that time. But almost overnight, marketing began to expect systems to help out with a whole range of critical and time-sensitive tasks such as long-range planning, forecasting and competitive analysis, Sheridan says.

Now about one-sixth of the information systems department at her firm is dedicated to marketing support. More importance is being placed on marketing systems as the marketplace becomes increasingly competitive.

Demanding pace

Marketing isn't a pursuit that tolerates delay or excuses, Sheridan says. These folks want to be able to get what they need when they need it. Therefore, even at the programmer level you must be able to juggle projects and respond quickly without losing your cool, she says.

Still, the challenges and rewards of supporting marketing systems are similar whether you report to IS or marketing. The challenges are providing timely, flexible systems that the marketing people can use immediately. The rewards are that it is more creative and that the marketing people depend on the systems people for input.

Supporting marketing systems in the marketing department is fairly typical compared with supporting marketing systems in the IS department.

> **MARKETING PEOPLE tend to be creative and IS people are usually analytical, and unless there is someone who can communicate across the two disciplines, it can be very difficult to develop effective systems.**

At Matthew Bender & Co., a legal publishing firm in New York, there is a network administrator in the marketing department — a sort of a mini-IS department inside marketing. This idea of self-contained IS groups is taking hold throughout the company. For instance, human resources also has its own systems support staff. Don Eddy, manager of IS, says he believes other departments will follow suit. Marketing was the first, however, because of its strategic importance.

Working in this area also requires both ingenuity and a feel for the creative process, says Will Kostelecky, director of sales, marketing and quick response information management systems at Black & Decker Corp.'s U.S. Power Tools Group in Cockeysville, Md. A successful IS function will provide applications and platforms for graphics, what-if analysis, productivity software and workgroup communications.

Keep it simple

Marketing support professionals also stress the importance of being personal computer and network literate. Knowledge of mainframe access tools and on-line query tools is also vital, as is the ability to build flexible, user-friendly reports. Because most employees who access the data are not systems people, the systems staff should be able to deliver systems that are easy to access, using graphical user interfaces and mouse devices instead of keyboard interaction.

For example, most marketing reports at Monarch Marking are generated using an on-line query system that the marketing people can access themselves, says Willa Ricks, a resource development analyst. It makes life easier for the systems people, she says, because the marketing people can change their minds about the type of information they want without having to wait for someone in systems to redo a report.

Because the informational demands of marketing departments are so varied and so pressing, some companies actually maintain a dedicated systems function within that department. Eddy, who reports to the director of marketing at Matthew Bender, says timeliness was the primary problem IS faced providing marketing with systems support. By the time the reports arrived, marketing was already concerned with a different situation.

Kansas City Southern Railway Co. in Kansas City, Mo., also has a systems person on hand who is completely dedicated to marketing. This resulted when IS couldn't keep up with the marketing department's ever-changing needs.

"They'd ask for one report today, then a variation on it tomorrow. We didn't have the resources or the business knowledge to keep up," explains Rodney Scott, director of revenue and marketing systems.

The company decided it would be easier to teach a marketing employee about systems than it would be to teach a systems employee about marketing, so they sent Bill Hundelt, market manager of MIS, to a 12-week course in programming.

When Hundelt was sent to learn programming, there were seven other employees in the class. All seven obtained jobs in the IS department, not in the user departments where they came from.

Hundelt, however, is now physically located in the IS department but reports to the vice president of marketing. He is the only non-IS employee responsible to a user department yet working in IS.

One benefit to working in a marketing environment, Eddy says, is that marketing generally receives more attention than do other departments, including IS, from top-level management. The company needs the marketing information to be successful, he says. Therefore, marketing systems often are emphasized more than other systems.

Within an IS department, marketing support employees should have business acumen. "There's a place for programmers, but the analysts tend to be business analysts first and systems analysts second," Sheridan says.

This is because marketing people tend to be creative types and IS people are usually analytical types, and unless there is someone who can communicate across the two disciplines, it can be very difficult to develop effective systems.

In other departments, such as manufacturing, the staff recognizes the data from the start because it's very straightforward. But Ricks describes marketing as "blue-sky stuff" — she has to understand the data in order to support the department.

In addition, supporting a marketing department may mean longer hours, particularly when there's a new product introduction. "Marketing definitely burns the midnight oil, so it stands to reason marketing support will, too," Kostelecky says.

Weixel is a free-lance writer based in Marlboro, Mass.

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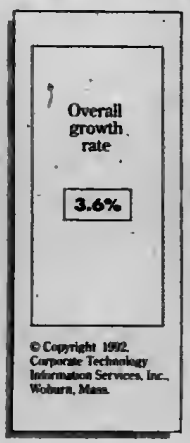

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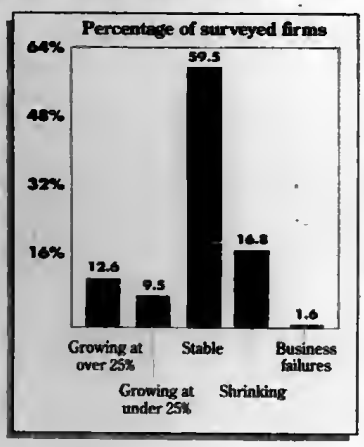

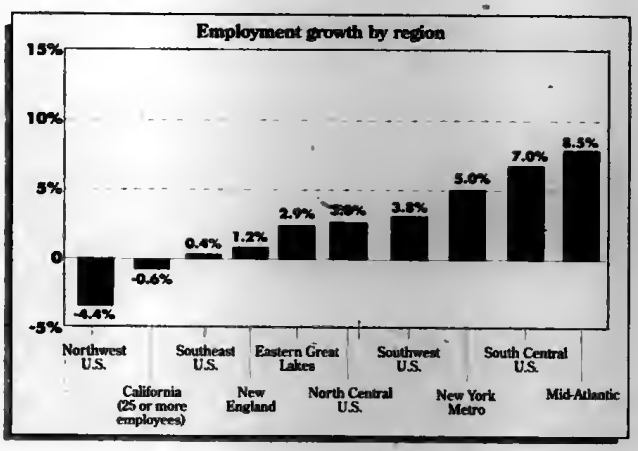

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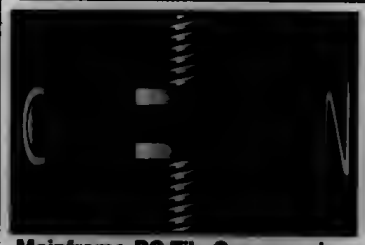

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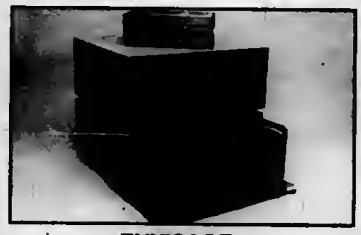

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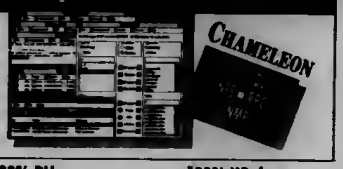

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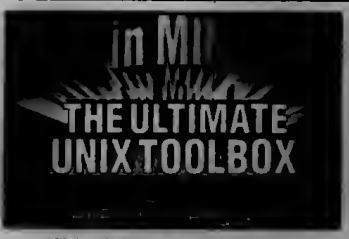

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Don't fall for a slick pitch

An IS executive tells how to simplify hardware buying decisions

BY LEILANI E. ALLEN
SPECIAL TO CW

Question: What do you do if you see three computer salesmen buried up to their neck in cement? Answer: Get more cement.

OK, I'll admit it. It's not fair to blame the poor salespeople; they're just doing their job. But anyone who has bought any kind of hardware in these times of rapid business and technological change can probably understand the humor in that joke.

I am responsible for recommending to my executives which computer hardware and software to buy, so I know firsthand that the decision is more complicated than ever.

In the past, we could rely on IBM and one or two other vendors to set industry direction. Today, the key decision when buying hardware is how to integrate and provide for interoperability across platforms. That calls for an "architectural" approach.

Because many of today's architectures involve mainframes, minicomputers, local-area network servers, laptops and any number of other devices, hardware selection almost always involves using more than one vendor.

There are some basic measures I use to evaluate prospective vendors. They are the following:

➤**Experience in my industry:** Highest points go to hardware vendors with experience supporting customers in my business. Not only does this save me from having to explain the intricacies of my industry, but it also increases the likelihood that the vendor will be able to alert me to important trends and developments.

➤**Ability to understand my strategy:** I look for a vendor that is willing and able to grasp my business and technical priorities. Do they understand the key economic drivers? Do they understand where I want to be on the leading edge curve? And are they willing to share their other customers' experiences, which oftentimes can save me time, money and grief?

➤**Integrate, integrate, integrate:** Most of us will support multivendor environments to support business clients' needs. I need a vendor that is actively building interfaces with other vendors' products.

➤**Multiple levels of support:** On the first level, a vendor should support me and my senior managers in the development and evolution of our strategies.

On the second level, the vendor must provide strong operational and installation support for my staff.

At level three, the vendor has to provide timely and accurate hot-line support in problem diagnosis and troubleshooting. Extra points go to those that offer creative solutions such as bulletin boards or the downloading of

software fixes.

➤**Solid technology partnership:** Vendors must have strong partnerships with software and network vendors. I judge them on their ability to spot current and future leaders, to integrate development strategies and to coordinate problem determination. They also have to be able to work collaboratively to solve operational problems.

Fingerpointing is not acceptable. For example, even if a hardware vendor is convinced that our problem is the database and not its machine, giving up and walking away from the problem is not the answer. I still expect the vendor to help troubleshoot the problem.

➤**Customer-based quality program:** When selecting a vendor, I ask to see evidence of its quality program.

I expect to see quality controls in the design and manufacturing process. And because these are the folks I will most frequently deal with, I want to know what the vendor is doing in the sales, marketing and administration areas as well as whether their people had formal customer service training and whether they routinely do customer surveys.

At the core of these quality efforts must be a commitment to the customer. One vendor I spoke with recently had created customer advisory teams at its headquarters whose job was to serve as my advocate to the company's support structure.

➤**Realistic pricing:** One of the key advantages to using multiple platforms is that I can grow my hardware base incrementally. Volume discounts are fine as long as I have a number of small steps rather than large leaps in pricing levels.

And I am less than thrilled with bundled solutions. I recently had a discussion with a personal computer vendor that offered a competitive price that included a bundle of popular software packages. The catch came when it was time to upgrade the software, for which the vendor had obviously retained the license.

We had to send the computer back to the company to install the upgrade. Can you imagine how I would look asking my users to pack up and mail in their laptops back to a vendor so they could go to the next release of their word processor?

➤**An attitude that says you want my business:** It sounds simple, but a lot of vendors give the impression that they're doing me a favor in taking my business. If I have to call more than once to set up a meeting or demonstration, if I'm handed from salesperson to salesperson for answers to my questions, if I can't get a reasonable trial period — all this communicates a clear message that my business is not worth focusing on. Therefore, someone with a lesser product but a "can do" attitude is going to get my attention.

➤**Lack of FUD (fear, uncertainty and doubt):** Vendors that compete by claiming technological advantage over one another leave me cold. PCs, in particular, are a commodity. Pop the cover and they are basically indistinguishable from one another. Even if the vendor has a unique feature, the product is still 95% the same. Therefore, I always want to make sure I have options to migrate to if necessary.

I urge you to develop your own list of criteria and share it with your vendors. The good ones will read it and take it to heart. The bad ones will ignore it. Either way, it will make your decision easier.

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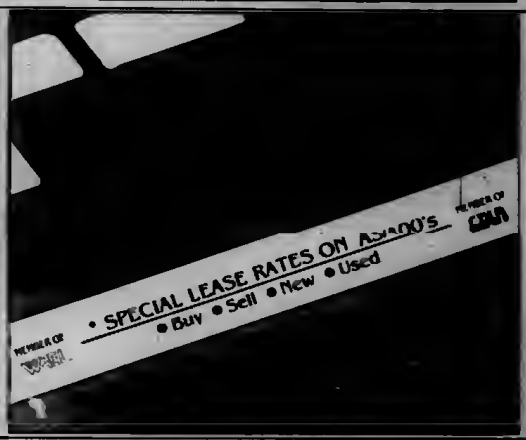

The BoCoEx index on used computers
Closing prices report for the week ending June 19, 1992

	Closing price	Ask	Bid
IBM AT 339	$500	$700	$250
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PS/2 Model 35SX	$1,325	$1,500	$800
PS/2 Model 55SX	$1,000	$1,300	$800
PS/2 Model 60	$600	$900	$325
PS/2 Model P70	$2,300	$3,000	$1,500
PS/2 Model 80	$1,600	$1,800	$1,100
PS/2 Model 95	$3,900	$4,200	$3,300
Compaq Portable II	$425	$500	$375
Portable III	$550	$650	$250
Portable 386	$1,300	$1,800	$1,000
SLT-286	$700	$900	$400
LTE-286	$850	$1,000	$500
Deskpro 286E	$500	$1,000	$325
Deskpro 386/33	$2,000	$2,450	$2,200
Apple Macintosh Classic	$800	$900	$700
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IIX	$2,700	$3,250	$2,000
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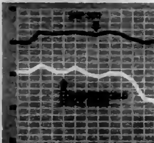

Industry Almanac

ANALYSIS IN BRIEF

"Under the Wire"
Richard Shaffer, editor
Technologic Partners
June 15

New money and savvy management give **Farallon Computing, Inc.** an advantage as **Apple Computer, Inc.** Macintosh networking schemes infiltrate the corporate mainstream.

Macintosh networking began as a niche whose small size and proprietary nature insulated it from the furious competition that marks the IBM personal computer-compatible connectivity arena. Companies such as Farallon, **Cayman Systems, Inc.** and **Shiva Corp.** grew quickly with one or two specialties that only occasionally overlapped.

With $16 million in new venture capital and shrewd management in the form of President Alan Lefkof — former president of Tandy Corp. subsidiary Grid Systems Corp. — Farallon seeks to ride the Macintosh's coattails into the corporate world. The Emeryville, Calif.-based company has unveiled a broad line of aggressively priced Ethernet adapters. Farallon is also expected to challenge Shiva and Cayman with a version of its StarController hub that provides gateway and router functions.

RECOMMENDATION CHANGES

UPGRADED FROM HOLD TO BUY: **Chipcom Corp.** (Prudential Securities, Inc.). Sales of intelligent hubs are brisk. An alliance with **IBM** — either a technology or financial agreement — could boost Chipcom (CHPM) shares. Stock currently trades at about $18, but the 12-month target price is $25.

A potential problem for the company is if Digital Equipment Corp. — which contributes 45% of Chipcom's revenue — started selling its own high-end intelligent hubs. Talk in the industry pegs such an event for late this year or early next year.

UPGRADED FROM BUY TO STRONG BUY: **Newbridge Networks Corp.** (Alex. Brown & Sons, Inc.) Most recent quarterly financials bested estimates. Earnings in the coming quarters will likely grow because major telecommunications carriers recently announced plans to use Newbridge Networks' (NNCXF) service offerings related to digital overlay networks.

KIM S. NASH

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, JUNE 26, 1992

TOP PERCENT GAINERS	
Filenet Corp.	21.92
Pyramid Technology (L)	13.92
Chipcom Corp	13.37
Marcam	10.96
Microcom Inc.	10.34
Amdahl Corp.*	6.02
Sungard Data Systems (H)	7.94
Ultimate Corp	7.69

TOP PERCENT LOSERS	
Gateway Communications	-50.00
Software Toolworks Inc	-33.38
Aldus Corp (L)	-32.64
Lotus Development*	-29.70
Meca Software	-23.20
Corporate Software	-18.16
Artel Communication Corp. (L)	-18.18
Borland Int'l Inc.*	-17.45

TOP DOLLAR GAINERS	
Filenet Corp.	4.00
Chipcom Corp	2.88
Matsushita Electronics	2.50
Intel Corp.*	2.50
IBM*	2.25
Sungard Data Systems (H)	1.38
Hewlett-Packard Co.*	1.50
Pyramid Technology (L)	1.38

TOP DOLLAR LOSERS	
Borland Int'l Inc.*	-8.38
Lotus Development*	-7.50
BMC Software Inc.	-7.38
Microsoft Corp.*	-6.75
Aldus Corp (L)	-5.88
Storage Technology* (L)	-4.25
Symantec Corp	-4.00
Reynolds and Reynolds	-3.30

Communications and Network Services — Off 2.12%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
OTC	15.00	8.75	3COM Corp.*	10.75	-1.88	-14.36
NYS	65.75	56.25	American Info Techs Corp*	62.38	-1.38	-2.14
NYS	44.63	32.38	AT&T*	41.38	-0.38	-0.89
OTC	4.25	1.00	Artel Communication Corp. (L)	1.13	-0.25	-18.18
NYS	50.63	40.25	Bell Atlantic Corp	44.50	-0.25	-0.56
NYS	52.63	43.38	Bellsouth Corp.	48.88	0.13	0.25
NYS	7.63	4.63	Bolt, Beranek & Newman (L)	4.75	-0.13	-2.56
NYS	69.88	36.63	Cabletron Systems	47.00	-1.00	-2.08
OTC	31.00	12.50	Chipcom Corp	24.38	2.88	13.37
OTC	48.50	15.38	Cisco Systems Inc.	44.88	0.88	1.99
OTC	25.25	12.75	Compression Labs Inc. (L)	13.38	-0.13	-0.93
OTC	3.38	0.88	Data Switch Corp	1.25	0.00	0.00
NYS	23.63	12.38	Digital Comm. Assoc.*	18.06	-1.38	-7.10
OTC	17.75	6.50	Digital Systems Int'l Inc	6.00	-1.50	-14.29
OTC	7.63	3.63	DSC Communications	4.63	0.13	2.75
OTC	10.88	4.75	Fibronics Int'l Inc. (L)	5.13	0.25	5.13
OTC	37.50	13.75	Filenet Corp	32.25	4.00	21.92
OTC	3.38	1.13	Gandalf Technologies Inc.	2.63	0.13	5.00
OTC	2.50	0.38	Gateway Communications	0.88	-0.38	-50.00
NYS	5.50	2.13	General Datacomm Inds	3.50	0.13	3.70
ASE	5.88	0.50	Go Video	2.75	-0.25	-8.33
NYS	25.00	38.13	GTE Corp.*	31.75	0.38	1.20
NYS	70.63	50.00	ITT Corp.	64.13	0.63	0.98
OTC	36.13	25.25	MCI Communications Corp	32.13	-0.38	-2.65
OTC	14.50	6.75	Microcom Inc	8.00	0.75	10.34
NYS	16.25	8.63	Network Equipment Tech.*	11.38	0.25	2.25
OTC	25.50	6.75	Network General	16.50	-1.50	-7.50
OTC	20.00	6.50	Network Systems Corp	9.88	0.13	1.29
OTC	17.38	5.50	Newbridge Networks Corp	16.25	0.50	3.17
NYS	49.25	24.13	Northern Telecom Ltd* (L)	35.50	1.00	6.50
OTC	65.00	23.56	Novell Inc.*	50.50	-2.25	-4.27
NYS	92.38	69.13	Nynex Corp*	76.75	-2.25	-2.85
OTC	37.50	16.50	Octel Communications Corp.	18.38	-2.38	-11.45
OTC	6.88	4.50	Penril Data Comm. Ntwks (L)	4.38	-0.13	-2.50
OTC	63.00	22.00	Picturetel Corp.	25.63	-1.00	-3.75
OTC	16.75	10.00	Proteon Inc.	10.75	-1.25	-10.42
NYS	24.00	11.63	Scientific Atlanta Inc.	22.50	0.63	2.36
NYS	38.00	51.50	Southwestern Bell Corp	59.75	-1.88	-3.04
NYS	30.25	20.75	Sprint Corp	21.50	-0.75	-3.37
OTC	38.25	14.25	Synoptics Communications	25.50	1.13	3.36
NYS	38.88	32.38	US West Inc	36.00	0.63	1.77
OTC	41.25	21.25	Wellfleet Communications	28.25	0.00	0.00

PC and Workstations — Off 2.83%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
OTC	15.25	4.75	Advanced Logic Research (L)	4.75	-0.50	-9.52
OTC	70.00	41.75	Apple Computer Inc*	45.50	0.75	1.68
OTC	32.25	12.50	AST Research Inc.* (L)	12.88	-0.38	-2.83
NYS	18.25	6.50	Commodore Int'l (L)	9.50	-0.75	-7.32
NYS	37.50	22.13	Compaq Computer Corp*	23.63	-0.75	-3.08
OTC	29.00	13.91	Dell Computer Corp.	16.88	1.00	6.30
OTC	7.75	3.00	Everex Systems Inc	3.38	-0.50	-12.90
NYS	34.00	21.25	Harris Corp	27.13	-0.88	-3.13
NYS	65.00	44.63	Hewlett-Packard Co*	68.38	1.50	2.24
OTC	16.50	7.38	Mips Computer Systems	8.63	-0.38	-4.17
NYS	29.75	13.25	Silicon Graphics	18.38	-1.13	-6.43
OTC	35.38	20.75	Sun Microsystems Inc.*	23.13	-1.38	-5.61
NYS	31.25	23.38	Tandy Corp*	24.25	-1.00	-3.38
NYS	11.13	5.13	Zenith Electronics	7.25	0.00	0.00
OTC	25.50	5.25	Zeos International Ltd. (L)	6.38	0.38	6.25

Large Systems — Up 0.72%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
ASE	20.63	11.63	Amdahl Corp.*	18.63	1.38	6.00
NYS	14.00	7.50	Control Data Corp	13.75	0.00	0.00
NYS	16.38	7.00	Convex Computer (L)	7.38	-0.13	-1.67
OTC	16.63	2.38	Cray Computer	3.13	-0.13	-3.89
NYS	52.25	27.63	Cray Research Inc.* (L)	27.63	-0.38	-3.07
NYS	22.50	7.16	Data General Corp (L)	7.75	0.25	3.33
NYS	71.75	34.50	Digital Equipment Corp.* (L)	24.50	-1.80	-4.17
NYS	106.38	81.63	IBM*	57.25	2.25	2.37
NYS	127.50	93.50	Matsushita Electronics	103.00	2.50	2.49
OTC	19.75	8.50	Pyramid Technology (L)	11.25	1.38	13.92
OTC	17.88	7.50	Sequent Computer Sys.	14.38	0.38	2.50
OTC	18.38	6.50	Sequoia Systems Inc (L)	6.75	-1.25	-12.50
NYS	54.25	38.75	Stratus Computer Inc*	41.13	-1.13	-2.66
NYS	15.13	6.50	Tandem Computers Inc.*	12.25	-0.13	-1.01
OTC	3.44	1.13	Tandon Corp	1.25	0.00	0.00
NYS	11.75	3.38	Unisys Corp*	6.75	0.00	0.00
ASE	7.50	2.00	Wang Labs Inc (b)*	3.63	0.25	7.41

Software — Off 6.78%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
OTC	88.50	27.50	Adobe Systems Inc.	42.25	-1.75	-3.98
OTC	13.25	3.50	AI Corp.	4.75	-1.00	-17.39
OTC	46.50	11.50	Aldus Corp (L)	12.13	-5.88	-32.64
OTC	16.75	10.13	American Software Inc	12.25	0.25	2.08
OTC	20.00	7.50	Ask Computer Systems	11.00	-0.25	-2.22
OTC	57.25	23.25	Autodesk Inc	36.50	0.75	2.10
OTC	37.75	8.25	Bachman Info. Systems (L)	9.00	-0.13	-1.37
OTC	42.50	25.00	BGS Systems Inc.	36.25	-0.50	-1.36
OTC	79.00	36.63	BMC Software Inc	39.63	-7.38	-15.69
OTC	20.50	6.00	Boole & Babbage	17.13	-0.13	-0.72
OTC	86.75	38.63*	Borland Int'l Inc.*	39.63	-8.38	-17.45
OTC	11.25	4.50	CE Software	4.63	-0.38	-7.50
ASE	18.38	6.50	Cheyenne Software Inc.	11.75	-0.25	-2.08
OTC	20.38	7.25	Cognos Inc.	8.13	0.25	3.17
NYS	17.00	7.50	Computer Associates*	11.13	-1.63	-12.75
OTC	21.50	8.25	Comshare Inc. (L)	10.00	-1.00	-9.09
OTC	47.88	18.38	Easel Corp.	20.50	-1.75	-7.87
OTC	16.50	6.25	Goal Systems Int'l	15.75	-0.25	-1.56
OTC	25.50	11.50	Group 1 Software	15.50	0.00	0.00
OTC	8.63	3.63	Hogan Systems Inc. (L)	3.63	-0.25	-6.45
OTC	36.25	18.75	Information Resources	16.75	-1.63	-7.88
OTC	38.00	8.50	Informix Corp.	27.25	-2.00	-6.84
OTC	3.63	1.08	Intellicorp Inc.	1.63	0.00	0.00
OTC	27.75	14.25	Intergraph Corp. (L)	14.50	-0.63	-4.13
OTC	15.00	4.38	Interleaf Inc.	6.38	0.63	8.75
OTC	50.25	8.50	Intersolv Inc.	12.75	-0.25	-1.92
OTC	30.06	10.50	Knowledgeware Inc.	11.38	0.38	3.26
OTC	48.25	20.25	Legent Corp*	30.63	-0.88	-2.75
OTC	40.75	17.75	Lotus Development*	17.75	-7.50	-29.70
OTC	7.38	2.38	Meca Software	2.38	-0.81	-23.20
OTC	22.25	10.50	Mentor Graphics (L)	10.50	-0.88	-7.69
OTC	20.50	6.50	Micrografx Inc	14.50	-2.00	-12.12
OTC	38.84	40.34	Microsoft Corp.*	66.75	-6.75	-9.18
OTC	21.15	7.88	Oracle Corp.*	14.25	-1.88	-11.63
OTC	41.25	11.94	Parametric Technology	34.50	-1.00	-2.82
OTC	11.00	4.25	Phoenix Technologies (L)	4.25	-0.38	-17.07
OTC	25.25	6.38	Platinum Technology	13.50	-1.00	-6.90
OTC	46.50	27.50	Progress Software Corp	32.50	1.00	3.17
OTC	25.63	11.00	Quarterdeck Office Sys.	11.00	-2.00	-15.38
OTC	25.50	8.75	Rasterops (L)	10.25	0.60	6.13
OTC	17.25	8.75	Rose Systems (L)	7.50	-1.25	-14.25
OTC	38.25	11.25	Software Publishing Corp.	12.75	0.25	2.00
OTC	6.50	2.00	Software Toolworks Inc.	2.08	-1.08	-33.38
OTC	7.25	1.75	Spinnaker Software	3.00	-0.50	-14.29
OTC	16.50	6.25	State of the Art	6.25	0.25	3.13
NYS	25.25	11.38	Sterling Software Inc	14.50	0.25	1.75
OTC	30.00	13.00	Struct. Dynamics Research	14.50	0.25	1.75
OTC	31.75	15.00	Sybase Inc.	25.00	0.00	0.00
OTC	51.00	21.25	Symantec Corp	35.13	-4.00	-10.22
NYS	15.50	7.25	Systems Center Inc.*	7.38	-0.50	-6.35
OTC	34.25	8.88	System Software Assoc.	38.00	-1.08	-3.45
OTC	23.75	16.75	Walker Interactive Systems (L)	16.75	-1.25	-6.94
OTC	6.63	2.13	Wordstar	2.63	-0.13	-4.65

Semiconductors — Off 3.52%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
NYS	21.50	8.38	Advanced Micro Devices	6.75	-0.75	-7.38
NYS	11.13	7.00	Analog Devices Inc	6.50	-0.25	-2.56
OTC	15.13	8.75	Atmel Corp.	6.75	-0.75	-7.38
OTC	14.13	6.38	Chips and Technologies	7.25	0.13	1.75
NYS	22.63	8.50	Cypress Semiconductor Corp.	6.50	0.13	1.49
NYS	6.75	6.25	Dallas Semiconductor	6.25	-0.13	-1.49
OTC	88.75	38.50	Intel Corp.*	55.25	2.50	4.74
NYS	6.88	6.00	LSI Logic Corp (L)	6.00	-0.50	-7.38
NYS	22.38	10.88	Micron Technology	14.25	0.38	8.54
NYS	83.75	54.00	Motorola Inc*	79.25	0.50	0.38
NYS	11.50	3.88	National Semiconductor*	8.75	-1.25	-12.50
OTC	27.00	12.75	Sierra Semiconductor (L)	13.75	-1.25	-8.33
NYS	40.50	25.00	Texas Instruments*	34.50	0.13	0.36
OTC	16.50	5.88	VLSI Technology	7.13	-0.38	-5.00
OTC	12.50	3.38	Weitek	3.38	-0.63	-15.63
ASE	5.63	2.00	Western Digital Corp	4.25	-0.38	-8.11
OTC	62.50	17.75	Xilinx (L)	17.75	-1.00	-5.33
OTC	11.50	4.63	Zilog Inc	7.25	0.25	3.57

Peripherals and Subsystems — Off 1.93%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
OTC	6.00	1.00	Aperius Technologies	1.50	0.03	2.11
OTC	10.00	2.75	Archive Corp.	7.13	-0.13	-1.72
OTC	24.50	11.25	Banctec Inc.	22.50	0.25	1.12
OTC	23.50	5.63	Cambex Corp.	11.25	-0.63	-5.26
ASE	17.50	7.00	Cognitronics Corp (H)	15.63	-1.13	-6.72
NYS	23.88	12.50	Conner Peripherals*	17.50	-1.00	-5.41
ASE	18.38	3.34	Dataram Corp.	11.75	-0.63	-5.00
NYS	18.63	4.88	EMC Corp	15.88	-0.50	-3.05
OTC	8.38	4.75	Emulex Corp.	6.75	0.00	0.00
OTC	23.00	14.75	Evans & Sutherland	15.00	-0.38	-2.44
OTC	40.63	13.38	Exabyte	28.00	0.13	0.45
OTC	27.25	15.75	Intelligent Info. Systems	22.00	0.13	0.57
OTC	11.25	4.00	Iomega Corp	5.50	-0.25	-4.35
OTC	34.75	14.50	IPL Systems Inc.	16.75	-0.25	-1.32
OTC	24.50	11.75	Komag Inc.	12.63	0.25	2.00
OTC	14.00	1.63	Maxtor Corp.*	8.88	0.13	1.43
OTC	12.63	5.50	Micropolis Corp.	8.00	-0.75	-8.57
NYS	98.75	83.50	3M Co	88.63	-0.38	-0.36
OTC	6.75	3.50	Printronix Inc.	5.25	0.25	5.00
NYS	28.75	8.13	QMS Inc. (L)	8.50	0.00	0.00
OTC	16.00	6.38	Quantum Corp	12.88	0.25	1.98
OTC	12.25	5.13	Radius Inc.	10.50	0.13	1.20
NYS	12.38	5.88	Recognition Equipment	8.25	0.13	1.54
OTC	13.13	8.38	Rexon Inc.	9.00	-0.75	-7.69
OTC	17.63	7.25	Seagate Technology*	14.50	0.50	3.57
NYS	76.00	25.13	Storage Technology* (L)	29.13	-4.25	-12.73
NYS	30.88	16.00	Tektronix Inc	17.13	-2.00	-10.46
NYS	42.25	52.63	Xerox Corp.	67.88	0.00	0.00

Services — Off 1.98%

Exch	52-Week Range			June 26 Close	Wk Net Change	Wk Pct Change
OTC	16.67	10.63	American Mgmt. Systems(a)*	15.50	0.17	1.00
NYS	5.38	2.88	Anacomp Inc.	3.63	-0.13	-3.33
OTC	18.00	12.25	Analysts Int'l	18.50	0.00	0.00
NYS	49.00	30.25	Auto Data Processing*	42.25	0.00	0.00
NYS	24.16	12.50	Comdisco Inc.*	14.63	0.13	0.86
OTC	13.50	7.75	Computer Horizons	9.00	-0.50	-5.26
NYS	84.38	52.25	Computer Sciences*	61.38	-2.13	-3.25
NYS	10.13	7.00	Computer Task Group	8.25	0.13	1.54
OTC	16.25	7.75	Corporate Software	10.00	-2.38	-19.16
OTC	30.75	12.75	Egghead Discount Software	16.38	-2.38	-14.94
NYS	33.06	23.16	General Motors E (EDS)*	27.63	0.88	3.27
OTC	50.38	7.38	Intelligent Electronics (L)	7.38	-1.25	-14.49
OTC	18.38	2.50	Marcam	10.13	1.00	10.96
OTC	15.75	5.75	Microage Inc.	10.25	-0.25	-2.38
OTC	37.50	13.50	Paychex	22.00	-0.25	-1.12
NYS	75.00	47.25	Policy Management Sys	60.75	-1.50	-2.41
NYS	43.50	16.63	Reynolds and Reynolds	37.13	-3.00	-7.48
OTC	32.00	21.25	SEI Corp	22.25	-1.25	-5.32
OTC	24.38	18.38	Shared Medical Systems (L)	18.00	0.75	4.35
OTC	25.75	13.50	Sungard Data Systems (H)	25.50	1.88	7.94
NYS	4.88	1.13	Ultimate Corp.	1.75	0.16	7.69

Note: American Mgmt. Systems completed a 3-for-2 stock split.

KEY: (H) — New annual high reached in period (L) — New annual low reached in week

* Companies tracked in Computerworld Stock Index

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ABP

IN BRIEF

3Com sales jump 49%

■ Continuing its turnaround, **3Com Corp.** last week reported fourth-quarter earnings of $4.9 million, up 49% from the comparable period last year. Sales for the quarter ended May 31 were $121.7 million, up 31% from the period one year earlier. 3Com earned $4.2 million in fiscal 1992, including a $10.4 million charge related to the acquisition of BICC Data Networks, on sales of $408.4 million. Last year the Santa Clara, Calif.-based company lost $27.6 million on sales of $398.5 million.

■ **Cabletron Systems, Inc.** last week reported first-quarter net income of $17.6 million, up 30% from the comparable period last year. Sales for the quarter ended May 31 were $88 million, up 45% from the same period last year, the Rochester, N.H.-based company said.

■ **Legent Corp.** in Vienna, Va., last week elevated two senior executives and created a new position in charge of professional services. William J. Drummey and Robert Yellin were named executive vice president/sales and service and senior vice president/development, respectively. Brendan J. Dawson was named vice president/professional services.

Short takes

■ **Central Point Software, Inc.** in Beaverton, Ore., last week postponed an initial public offering, citing unfavorable market conditions. . . . **Stockholders of Silicon Graphics, Inc.** in Mountain View, Calif., and **Mips Computer Systems, Inc.** last week approved the merger of the two companies. . . . **Sevin Rosen Bayless Funds** in Dallas was recently lauded as a "supporter of entrepreneurship" by Ernst & Young, *Inc.* magazine and Merrill Lynch & Co.

HP to buy TI Unix systems line

Deal underscores HP's shift away from its proprietary operating system

BY MARK HALPER
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. gave further indication last week that its minicomputer future will rely on Unix rather than MPE-IX after agreeing to acquire Texas Instruments, Inc.'a multiuser Unix systems business.

The pending acquisition, for an undisclosed amount of cash, would bring TI'a value-added resellers into the HP fold, giving HP a reach into markets it has not yet successfully penetrated, said HP Executive Vice President Lewis Platt, who runs the company's Computer Systems Organization. Those markets include automotive dealerships, services, health care and wholesale distribution, Platt said.

HP plans to migrate users of TI's 68000-based 1500 computer family to HP's 9000 Series 800 multiuser systems, which are based on HP'a Precision Architecture-RISC chip. The 1500 line runs TI'a System V, Release 3 Unix implementation, and the Series 800 line runs HP'a Unix, called HP/UX.

While Platt claimed that HP does not plan to discontinue the 1500 line, he said that only one new model is currently planned. That model, for which he declined to provide specifications, is slated for introduction this fall, which is around the time that HP and TI plan to close the acquisition. For now, HP will buy the 1500 machines from TI through an OEM sales arrangement and resell them with the TI logo, Platt said.

Sign of the times

The pending acquisition further flags the importance of Unix over MPE at HP, some users said. While HP still garners more sales revenue from its MPE line — the HP 3000 Series 900 — than from its Series 800, Unix revenue is expected to surpass MPE later this year [CW, May 25]. Sales of the 800 line have been growing steadily and, along with peripherals, accounted for much of the company'a $450 million revenue growth in the quarter that ended April 30.

Users conjectured that HP will eventually make a full version of Unix available on the 3000, and that such a move may coincide with a decision to slowly migrate 3000 users to Unix.

"I wouldn't be surprised if at one point they got rid of the 3000 and made a migration path for all the 3000 users to Unix," said Rodger Lindquist, manager of information services at Dreyer'a Grand Ice Cream, Inc. in Oakland, Calif.

Some users interpreted HP'a addition late last year of Posix hooks to MPE as the first step in a plan to offer a full-blown version of Unix.

The accord would also give HP ownership of TI's service organization, which provides service and support for HP and third-party computer products. HP said it plans to absorb about 450 of the 1,600 workers in the TI operation.

For TI, the sale would mean unloading a business that until two quarters ago consistently lost money.

TI'a John White, president of the Information Technology Group (ITG), said TI wants to focus on other products, including the ITG'a computer-aided software engineering offerings, notebook computers, printers and telecommunications systems.

Emulex to sell DEC storage line to System Industries

BY MELINDA-CAROL BALLOU
CW STAFF

MILPITAS, Calif. — Squeezed by both a shrinking market and Digital Equipment Corp.'a litigiousness, Emulex Corp. last week said it will sell its DEC storage product line to longtime competitor System Industries, Inc. for $5 million in stock and cash.

Emulex, in Costa Mesa, Calif., had previously announced its intention to discontinue the company's DEC storage products line because those sales have declined significantly and to focus on "more profitable product lines," such as Small Computer Systems Interface-based and host-related controllers and networking products, according to Bob Corey, vice president and chief financial officer at Emulex.

"DEC is being more aggressive in its pricing and in protecting its technologies, and the market is not growing," Corey said.

System Industries said Emulex's 300 DEC storage products will strengthen its market position. "Similar to other players in the market, our revenues have declined over the past year, and this will give us added market share," said Jesse Bean, treasurer at the firm.

The deal is expected to close Wednesday. Emulex will lose 160 employees as a result of the deal and expects to incur a pretax charge of between $16 million and $28 million for its fourth fiscal quarter, which ends today.

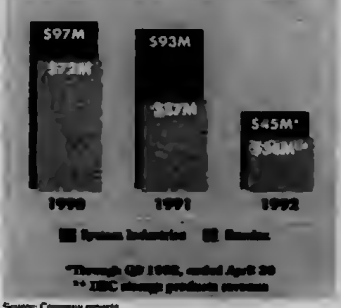
Industry analysts said the acquisition agreement was not surprising. "The technological race was becoming increasingly more expensive, as were the legal battles with DEC," said analyst Chris Christiansen at International Data Corp., a market research firm based in Framingham, Mass.

System Industries and Emulex each signed letters of accord to resolve suits for alleged infringement of DEC'a Standard Disk Interconnect and Standard Tape Interconnect patents.

DEC resolved legal disputes over the company'a Digital Storage System Interconnect patents by establishing a third-party licensing program earlier this spring.

Safety in numbers

System Industries hopes to overcome declining revenues by buying Emulex's DEC storage business



Source: Company reports

Pache takes Bull's reins

BY KIM S. NASH
CW STAFF

PARIS — Groupe Bull will name a new leader today as it tries to smooth ruffled government feathers and invigorate the company, which is still trying to reverse its $593 million loss for 1991.

Francis Lorentz, chairman for the past three years, will pass Bull'a reins over to computer industry outsider Bernard Pache, most recently chairman and chief executive officer at Charbonnages de France, a state-owned coal mining firm.

The French government, Bull'a biggest shareholder with a stake of 70% to 75%, opted not to renew Lorentz's contract but declined to specify why. Lorentz was unavailable for comment.

Speculation percolated last week that the executive swap is a bid to ease relations between the government and Groupe Bull. The two had disagreed earlier this year about which firm — IBM or Hewlett-Packard Co. — to take on as a technological and financial partner. Lorentz ultimately gave IBM a 5.7% stake in Bull in exchange for $100 million in cash, reportedly against the wishes of then-Prime Minister Edith Cresson.

'Ugly time'

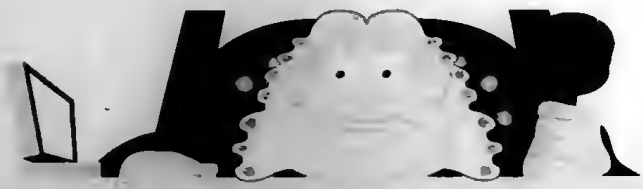
"Bull has been through a very, very ugly time in the past couple years. They have to keep trying to pull themselves out of it," said Martin Hingley, research director at the London office of market research firm International Data Corp.

Although Bull cut its losses in half from 1990 to 1991, a reorganization plan initiated more than two years ago called for the company to recapture profitability by the end of 1992. "It doesn't appear that that will happen, which was probably an important factor [in Lorentz'a departure]," Hingley noted.

Axel Leblois, president and CEO of Bull HN Information Systems, Inc., the U.S. subsidiary of Groupe Bull based in Billerica, Mass., said the company does not expect to make a profit in 1992 and possibly will not do so until the end of 1993.

Pache is expected to bring a user-oriented viewpoint to Groupe Bull, a company spokesman said. "Pache has been on the buy side of IS for years. He knows what a customer is going through," the spokesman said.

TRENDS



The Legal Market

Law firms continue to go high-tech

Out with the old, in with the new

Even though lawyers still share information the old-fashioned way, LANs are becoming more pervasive

	Percentage of firms using method*
LAN	65%
Exchange or share disks	42%
Exchange or share hard copies	34%
Minicomputer	30%
Do not share information	3%

Acquisitions on the horizon

The Top 5 products on the shopping list for most firms are the following:

	Percentage of firms planning to buy in the next 12 months*
PCs	69%
Laser printers	58%
Portable computers	46%
Memory for PCs	44%
Modems	42%

Top applications

Lawyers have access to a variety of software, such as spreadsheets, but primarily stick to legal-related packages

	Percentage of firms using applications*
Word processing	97%
Time and billing	93%
Conflicts	69%
Docket/calendar	66%
Case management	37%

Did You Know?

- Seventy-three percent of responding firms use consultants for advice on computer systems and software.
- Only 26% of responding firms have formal technology plans identifying priorities, applications and equipment configurations for the next two to five years.

Base: 346 midsize law firms (20 to 100 attorneys)
*Multiple responses allowed

Source: American Bar Association's Legal Technology Resource Center (Chicago), Survey of Automation of Midsize Law Firms

NEXT WEEK

Philippe Kahn ▶ doesn't have much time to play his sax these days. Borland, the company he heads, is busy trying to crank out already-late Windows versions of key products. Before it can take on the mantle of "the Microsoft of the '90s," Borland must also soothe an antsy user base increasingly concerned about product delivery and quality.

All stressed out and no place to go? Why not take a vacation? You may think you are impressing your boss by working 12-hour days, but forward-thinking bosses are persuading IS folks to get some R&R because refreshed workers are more productive. Read Computer Careers to see whether it's good for you to spend so much time in the office.

INSIDE LINES

Dark star

▶ As part of its ongoing reorganization, DEC is streamlining software operations. One of the projects to be hit is distributed database technology being developed under the code name RdbStar. DEC officials said the company will still develop the distributed database management portion of RdbStar, but they denied that development of the RdbStar engine will be cut entirely. Sources said the RdbStar research group in Colorado Springs will essentially be gutted, to which DEC officials said they had no comment.

Debased dBase

▶ Borland is investigating developer complaints that dBase IV 1.5 is crashing and losing data. Some developers are claiming the problem resides in faulty memory allocation that is causing dBase to run rampant through disk memory space. Borland confirms there has been one isolated incident, but it claims the problem may stem from factors other than dBase, such as hardware configuration. Borland has quietly begun offering a maintenance release of Version 1.5, although the company is mum on what problems the release addresses.

Who owes whom?

▶ IBM is scheduled to do battle with a San Diego-based AS/400 third-party reseller tomorrow over money that IBM has already admitted it has been paid. IBM filed suit against Legal Eagles Software in 1989, claiming the application vendor owed IBM for hardware and software pertaining to contracts signed during the AS/400's early days. When an independent investigator and accountants from Deloitte & Touche checked out the situation — at the behest of IBM — they found that Legal Eagles had in fact overpaid IBM. Nevertheless, Big Blue opted not to withdraw its case, and Legal Eagles filed counterclaims against IBM alleging fraud and bad-faith negotiation.

Open systems by another name

▶ Unix mania took a little hit last week when zealot Sequent revealed that it is developing a Windows NT machine for the client/server market. Sequent expects to introduce the server around the time Microsoft makes NT available later this year or early next year. The Beaverton, Ore.-based company will continue to offer its multiprocessing Unix machines, which it will position for larger jobs than those to be handled by the NT product.

Running out of gas

▶ Details of Amoco's previously announced reorganization plan [CW, June 22] are beginning to leak out — and it doesn't look good for the corporate IS group. About a third of the roughly 1,050 positions in the Chicago-based energy company's corporate IS group will be eliminated by mid-September, according to a source at Amoco.

Different orientation

▶ IBM will beef up its AD/Cycle offerings through a deal with re-engineering software provider Viasoft within the next two months, according to a consultant who was briefed last week. In September, IBM will outline its strategy to make AD/Cycle address the object-oriented world, the consultant said, "although IBM's notion of objects is different than other people's," he said. "They weren't real specific; the message was 'watch this space.' "

Just as computer virus fighters have their own magazines, a new electronic magazine is currently circulating on underground bulletin boards for virus writers. 40Hex is published by the North American Phalcon/Skism group, which operates the Digital Warfare bulletin board and contains articles on such topics as subverting memory-resident antivirus programs, observing scanner strings in memory, hacking virus code to make it undetectable and source code for various viruses. Contributors include such luminaries as Dark Angel, Night Crawler and Hellraiser. He may not have an intriguing handle, but News Editor Alan Alper is looking for news tips. Phone, fax or CompuServe him at (800) 343-6474; (508) 875-8931 or 76537,2413, respectively. Or try Computerworld*'s 24-hour voice-mail tip line at (508) 820-8555.*

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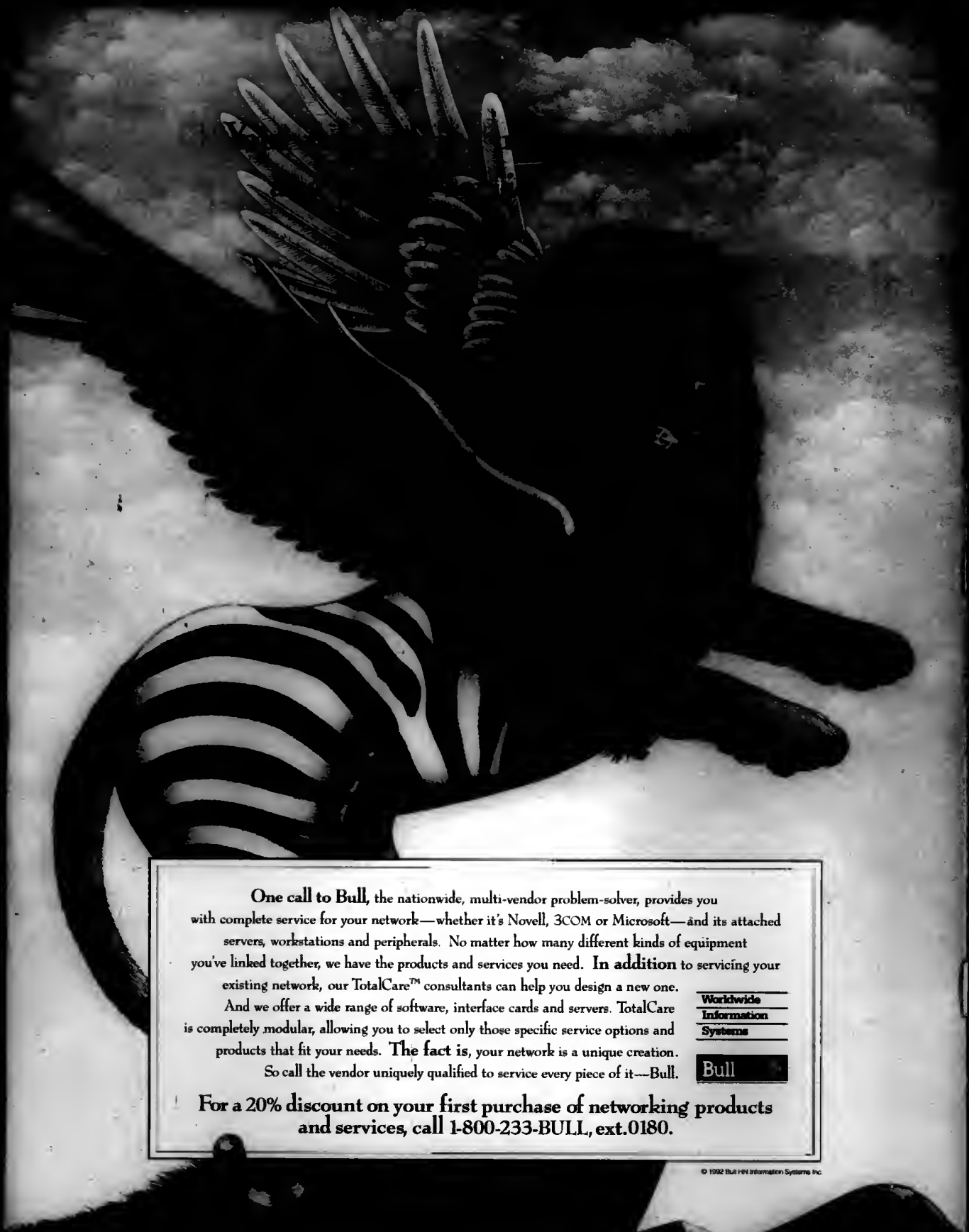

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